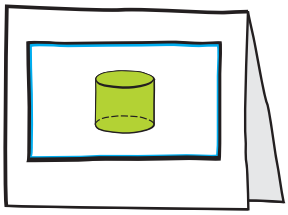
Big Ideas Math®

Game Closet

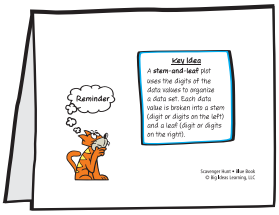
Scavenger Hunt

Materials:

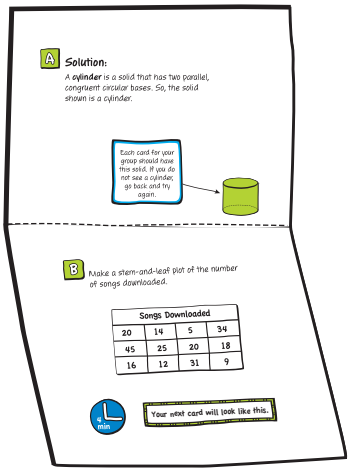
- Student directions (one for each group)
  - Group 1 (cylinder)
  - Group 2 (rectangular pyramid)
  - Group 3 (rectangular prism)
  - Group 4 (hexagonal pyramid)
  - Group 5 (triangular pyramid)
  - Group 6 (pentagonal prism)
  - Group 7 (triangular prism)
  - Group 8 (cone)
- Review cards (Fold each card vertically so the crease is on the right. Then fold each card horizontally so the crease is on the top.)
  - 8 sets (one for each group)
  - 2 decoy sets
- Solution I (the last solution, which is the same for all groups)
- Lined paper
- Calculators



Front



Back



Opened card

Directions:

Divide the students into 8 groups. The students will work in these groups to solve 9 problems. As the students work, be sure each student shows all work on lined paper. The first question is on the directions page. From there, the students are able to find the next card based on the answer. Once they have checked their answer, they can solve the next problem. The solid assigned to each group from the directions page will appear on each solution for that group. In each group, there should be a time keeper, messenger and a researcher. The time keeper watches the clock to make sure the group finishes the problem within the time given on the card. It is also their job to keep the group on task. The messenger is responsible for retrieving the next card and checking the group's solution on the card. Each student is responsible for showing all work on lined paper. The researcher is responsible for looking up how to solve the problem if the students cannot figure it out as a group. The activity is complete when each group has completed all questions correctly. If the students solve the problems within the time limit given on each card, this activity should take about 30 minutes.

BIG IDEAS LEARNING®

Objectives:

This is a back-to-school review game. Use it before you start the Blue Book.

The student will

- identify a given solid.
- construct a stem-and-leaf plot.
- write and solve a proportion.
- evaluate an expression involving exponents and absolute value.
- write and solve a two-step equation.
- graph two points and find the slope of the line.
- write and simplify an expression involving fractions.
- convert between systems of measurement and calculate the surface area of a solid.
- graph figures in a coordinate plane and determine which two figures are similar.

Big Ideas Math®

Game Closet

Scavenger Hunt

Student Directions

Group 1

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a cylinder.

1 min

Your first card will look like this.

Big Ideas Math®

Game Closet

Scavenger Hunt

Student Directions

Group 2

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a rectangular pyramid.

1 min

Your first card will look like this.

Big Ideas Math®

Game Closet

Scavenger Hunt

Student Directions

Group 3

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a rectangular prism.

1 min

Your first card will look like this.

Big Ideas Math®

Game Closet

Scavenger Hunt

Student Directions

Group 4

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a hexagonal pyramid.

1 min

Your first card will look like this.

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Game Closet

Scavenger Hunt

Student Directions

Group 5

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a triangular pyramid.

1 min

Your first card will look like this.

Big Ideas Math®

Game Closet

Scavenger Hunt

Student Directions

Group 6

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a pentagonal prism.

1 min

Your first card will look like this.

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Game Closet

Scavenger Hunt

Student Directions

Group 7

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a triangular prism.

1 min

Your first card will look like this.

Big Ideas Math®

Game Closet

Scavenger Hunt

Student Directions

Group 8

Materials:

- Lined paper
- Review cards
- Calculators

Directions:

Decide who in the group will be the researcher, timekeeper, and messenger. There are Key Ideas on the back of each card, but if your group gets stuck, the researcher is responsible for looking in a book to help your group find the solution. The timekeeper makes sure that your group finds the solution in the time limit given. Once each group member has shown all work on the lined paper, and arrived at the same solution, the messenger retrieves the next card by using your group's solution. Once you have completed all the cards, your group is finished!

Start by solving the problem below.

A Sketch a cone.

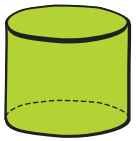
1 min

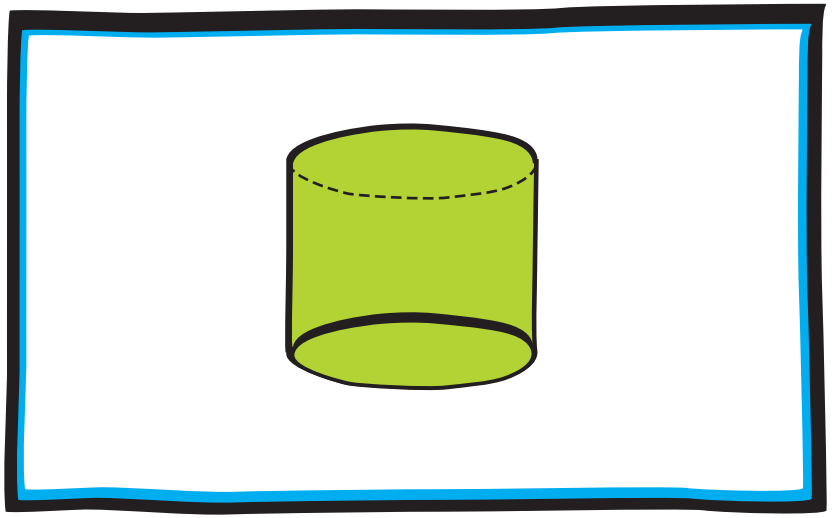
Your first card will look like this.

A Solution:

A **cylinder** is a solid that has two parallel, congruent circular bases. So, the solid shown is a cylinder.

Each card for your group should have this solid. If you do not see a cylinder, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
20	14	5	34
45	25	20	18
16	12	31	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

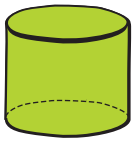
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 45, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 9
1	2 4 6 8
2	0 0 5
3	1 4
4	5

Key: 1 | 4 = 14 songs

C

It costs $37.50 for 5 tickets to the movies. Write and solve a proportion to determine how much 8 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

C Solution:

Write and solve a proportion.

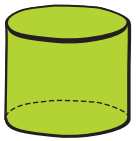
$$\frac{37.50}{5} = \frac{x}{8}$$ ← dollars, ← tickets

$37.50 \cdot 8 = 5 \cdot x$ Cross Products Property

$300 = 5x$ Multiply.

$60 = x$ Divide.

It costs $60 for 8 tickets to the movies.



00.09$

D

Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = -3$ and $y = 1$.

3 min

Your next card will look like this.

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute -3 for x and 1 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

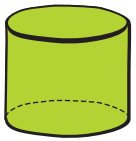
$$= (-3)^2 - |1 - 2| + \frac{12}{-3}$$

$$= 9 - |-1| + (-4)$$

$$= 9 - 1 + (-4)$$

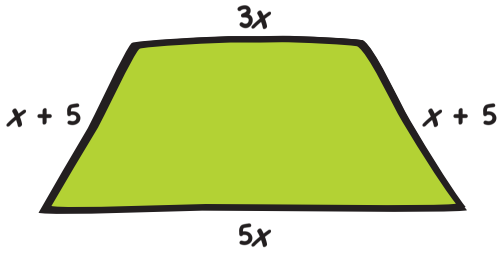
$$= 9 + (-1) + (-4)$$

$$= 4$$



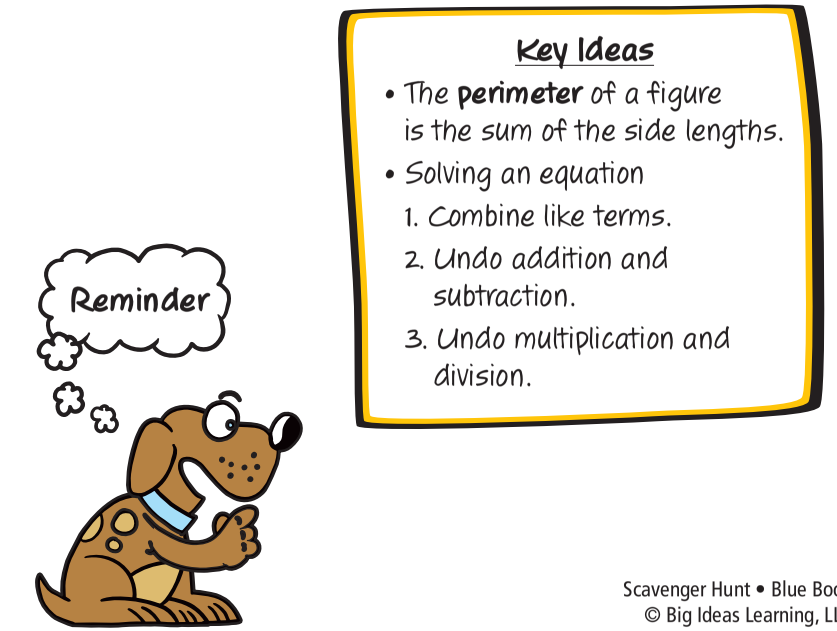
E

The perimeter of the trapezoid is 40.
What is the value of x?



4 min

Your next card will look like this.



Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E **Solution:**

P = Sum of side lengths

$40 = (x + 5) + 3x + (x + 5) + 5x$

$40 = 10x + 10$

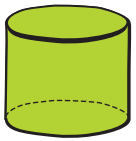
$-10 \quad -10$

$30 = 10x$

$\frac{30}{10} = \frac{10x}{10}$

$3 = x$

The value of x is 3.

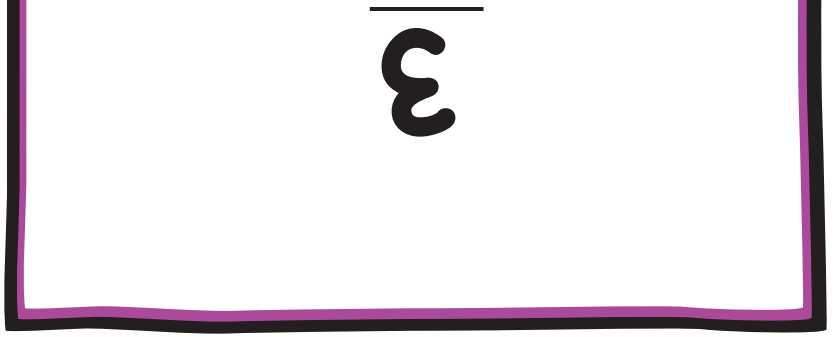


F Graph the line that passes through the two points (-2, 2) and (4, 6). Then find the slope of the line.

3 min

Your next card will look like this.

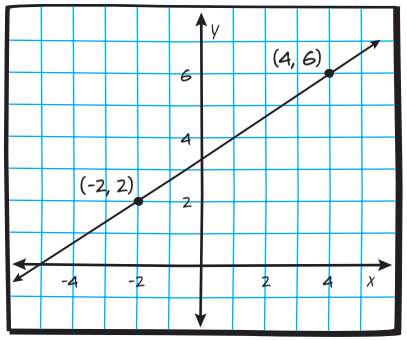
Reminder



Key Ideas

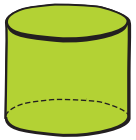
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F **Solution:**



$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{4}{6} = \frac{2}{3}$$

The slope of the line is $\frac{2}{3}$.



$\frac{3}{2}$

G What is the difference of $1\frac{4}{5}$ and $-3\frac{3}{10}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G Solution:

$1\frac{4}{5} - \left(-3\frac{3}{10}\right)$

$= 1\frac{4}{5} + 3\frac{3}{10}$

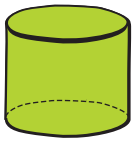
$= \frac{9}{5} + \frac{33}{10}$

$= \frac{18}{10} + \frac{33}{10}$

$= \frac{51}{10}$

$= 5\frac{1}{10}$

The difference is $5\frac{1}{10}$.



$5\frac{1}{10}$

H

Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.

1 in. ≈ 2.54 cm

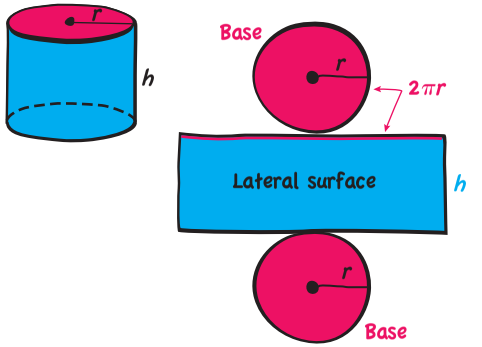
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 15.24 centimeters to inches.

$15.24 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 6 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

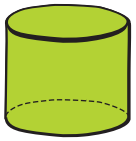
$= 2\pi(6)^2 + 2\pi(6)(9)$

$= 72\pi + 108\pi$

$= 180\pi$

$\approx 565.2 \text{ in.}^2$

The surface area is about 565.2 square inches.



565.2 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)

Triangle B: (0, 0), (6, 0), (0, 9)

Triangle C: (0, 0), (6, 0), (0, 6)

5 min

Congratulations!
Once you have checked the solution with your teacher, your group is all done!

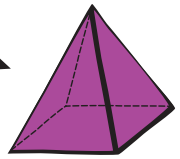
Key Ideas

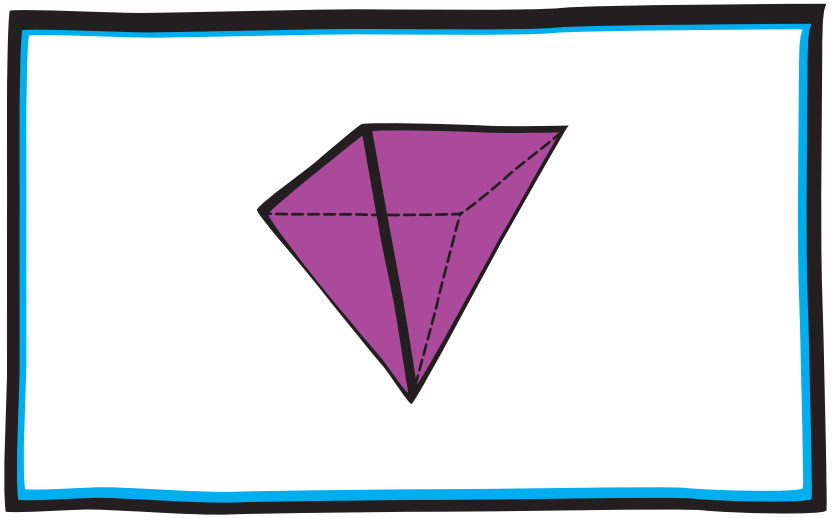
- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

A Solution:

A **rectangular pyramid** is a solid that has one rectangular base and four triangular lateral faces. So, the solid shown is a rectangular pyramid.

Each card for your group should have this solid. If you do not see a rectangular pyramid, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
26	14	5	34
45	6	20	34
6	21	19	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

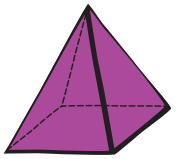
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 45, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 6 6 9
1	4 9
2	0 1 6
3	4 4
4	5

Key: 1 | 4 = 14 songs

C

It costs $37.50 for 5 tickets to the movies. Write and solve a proportion to determine how much 3 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

C **Solution:**

Write and solve a proportion.

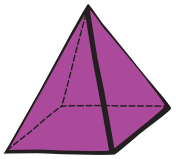
$$\frac{37.50}{5} = \frac{x}{3}$$ ← dollars, ← tickets

$37.50 \cdot 3 = 5 \cdot x$ **Cross Products Property**

$112.5 = 5x$ **Multiply.**

$22.5 = x$ **Divide.**

It costs $22.50 for 3 tickets to the movies.



$22.50

D Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = 2$ and $y = -1$.

3 min

Your next card will look like this.

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute 2 for x and -1 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

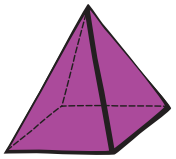
$$= 2^2 - |-1 - 2| + \frac{12}{2}$$

$$= 4 - |-3| + 6$$

$$= 4 - 3 + 6$$

$$= 4 + (-3) + 6$$

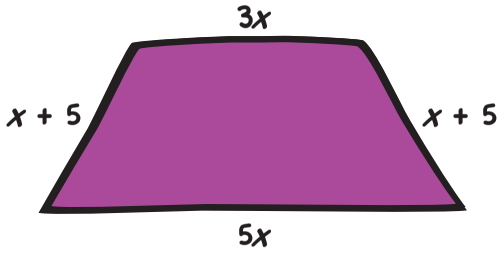
$$= 7$$



$\overline{L}$

E

The perimeter of the trapezoid is 30.
What is the value of x?



4 min

Your next card will look like this.

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E **Solution:**

P = Sum of side lengths

$30 = (x + 5) + 3x + (x + 5) + 5x$

$30 = 10x + 10$

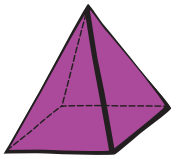
$-10 \quad -10$

$20 = 10x$

$\frac{20}{10} = \frac{10x}{10}$

$2 = x$

The value of x is 2.



$\overline{2}$

F Graph the line that passes through the two points (-2, 2) and (0, 3). Then find the slope of the line.

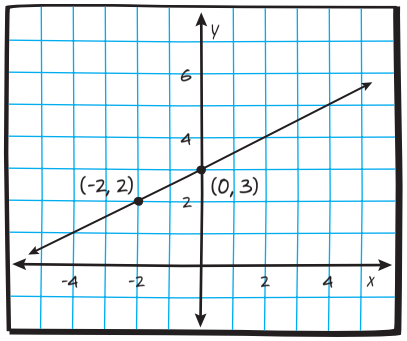
3 min

Your next card will look like this.

Key Ideas

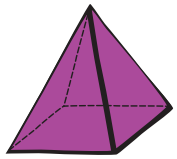
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F **Solution:**



$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{1}{2}$$

The slope of the line is $\frac{1}{2}$.



$\frac{2}{1}$

G What is the difference of $1\frac{3}{10}$ and $-2\frac{4}{5}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G Solution:

$1\frac{3}{10} - \left(-2\frac{4}{5}\right)$

$= 1\frac{3}{10} + 2\frac{4}{5}$

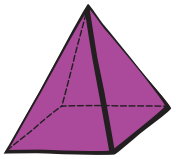
$= \frac{13}{10} + \frac{14}{5}$

$= \frac{13}{10} + \frac{28}{10}$

$= \frac{41}{10}$

$= 4\frac{1}{10}$

The difference is $4\frac{1}{10}$.



$4\frac{1}{10}$

H

Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.

1 in. ≈ 2.54 cm

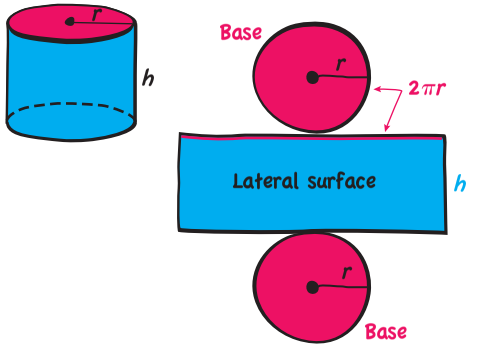
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 17.78 centimeters to inches.

$17.78 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 7 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

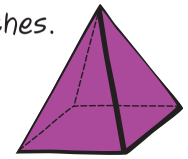
$= 2\pi(7)^2 + 2\pi(7)(9)$

$= 98\pi + 126\pi$

$= 224\pi$

$\approx 703.4 \text{ in.}^2$

The surface area is about 703.4 square inches.



703.4 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)

Triangle B: (0, 0), (6, 0), (0, 9)

Triangle C: (0, 0), (6, 0), (0, 6)

5 min

Congratulations!
Once you have checked the solution with your teacher, your group is all done!

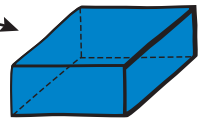
Key Ideas

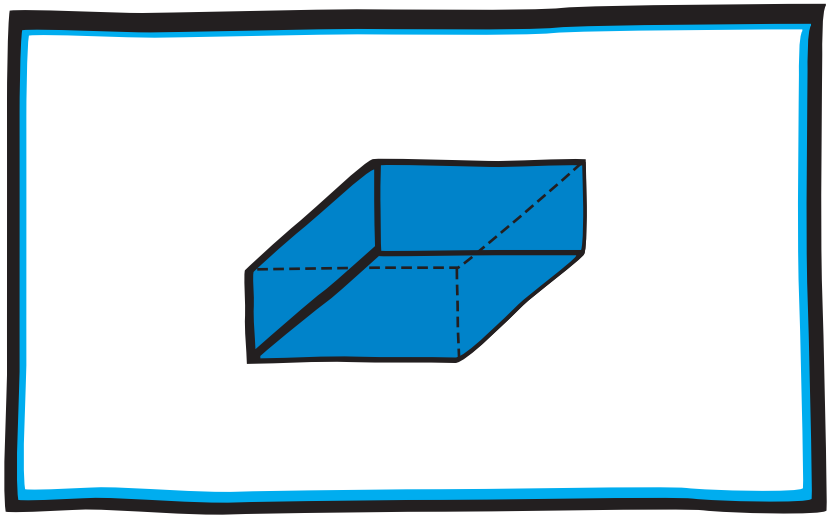
- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

A Solution:

A **rectangular prism** is a solid that has two parallel, congruent rectangular bases. The other faces are parallelograms. So , the solid shown is a rectangular prism.

Each card for your group should have this solid. If you do not see a rectangular prism, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
7	14	5	34
45	27	20	22
39	13	45	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

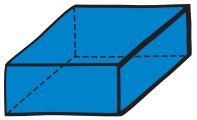
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 45, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 7 9
1	3 4
2	0 2 7
3	4 9
4	5 5

Key: 1 | 4 = 14 songs

C

It costs $37.50 for 5 tickets to the movies. Write and solve a proportion to determine how much 9 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion , use the **Multiplication Property of Equality** or the **Cross Products Property**.

C Solution:

Write and solve a proportion.

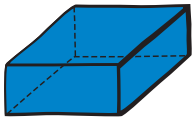
$$\frac{37.50}{5} = \frac{x}{9}$$ ← dollars, ← tickets

$37.50 \cdot 9 = 5 \cdot x$ **Cross Products Property**

$337.5 = 5x$ **Multiply.**

$67.5 = x$ **Divide.**

It costs $67.50 for 9 tickets to the movies.



$67.50

D

Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = 3$ and $y = -1$.

3 min

Your next card will look like this.

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute 3 for x and -1 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

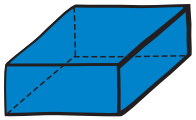
$$= 3^2 - |-1 - 2| + \frac{12}{3}$$

$$= 9 - |-3| + 4$$

$$= 9 - 3 + 4$$

$$= 9 + (-3) + 4$$

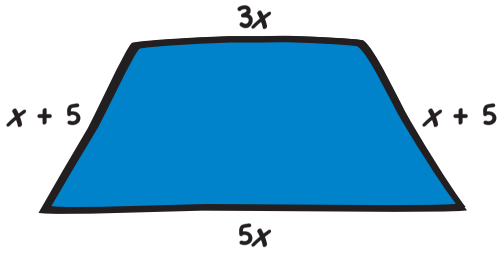
$$= 10$$



10

E

The perimeter of the trapezoid is 60.
What is the value of x?



4 min

Your next card will look like this.

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E **Solution:**

P = Sum of side lengths

$60 = (x + 5) + 3x + (x + 5) + 5x$

$60 = 10x + 10$

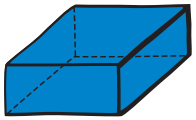
$-10 \quad -10$

$50 = 10x$

$\frac{50}{10} = \frac{10x}{10}$

$5 = x$

The value of x is 5.



$\overline{5}$

F Graph the line that passes through the two points (-2, 2) and (1, 2). Then find the slope of the line.

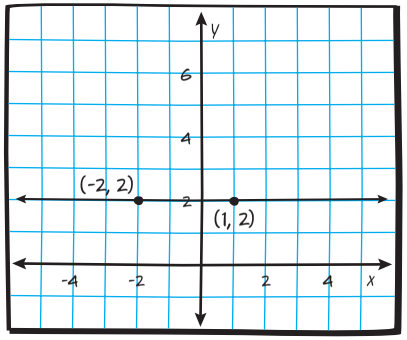
3 min

Your next card will look like this.

Key Ideas

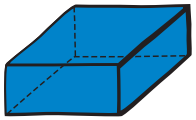
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F **Solution:**



$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{0}{3} = 0$$

The slope of the line is 0.



$\overline{0}$

G What is the difference of $1\frac{4}{5}$ and $3\frac{3}{10}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G **Solution:**

$1\frac{4}{5} - 3\frac{3}{10}$

$= 1\frac{4}{5} + \left(-3\frac{3}{10}\right)$

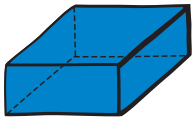
$= \frac{9}{5} + \left(-\frac{33}{10}\right)$

$= \frac{18}{10} + \left(-\frac{33}{10}\right)$

$= -\frac{15}{10}$

$= -1\frac{1}{2}$

The difference is $-1\frac{1}{2}$.



$-1\frac{1}{2}$

H Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.

1 in. ≈ 2.54 cm

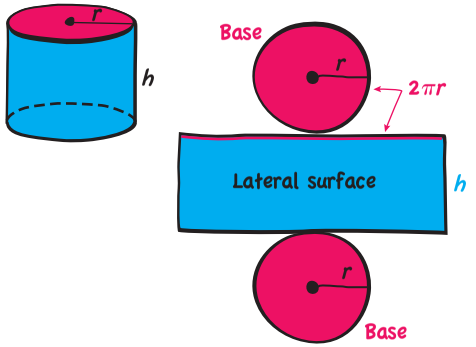
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 12.7 centimeters to inches.

$12.7 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 5 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

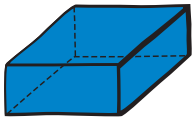
$= 2\pi(5)^2 + 2\pi(5)(9)$

$= 50\pi + 90\pi$

$= 140\pi$

$\approx 439.6 \text{ in.}^2$

The surface area is about 439.6 square inches.



439.6 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)

Triangle B: (0, 0), (6, 0), (0, 9)

Triangle C: (0, 0), (6, 0), (0, 6)

5 min

Congratulations!
Once you have checked the solution with your teacher, your group is all done!

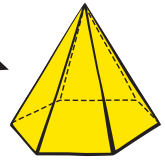
Key Ideas

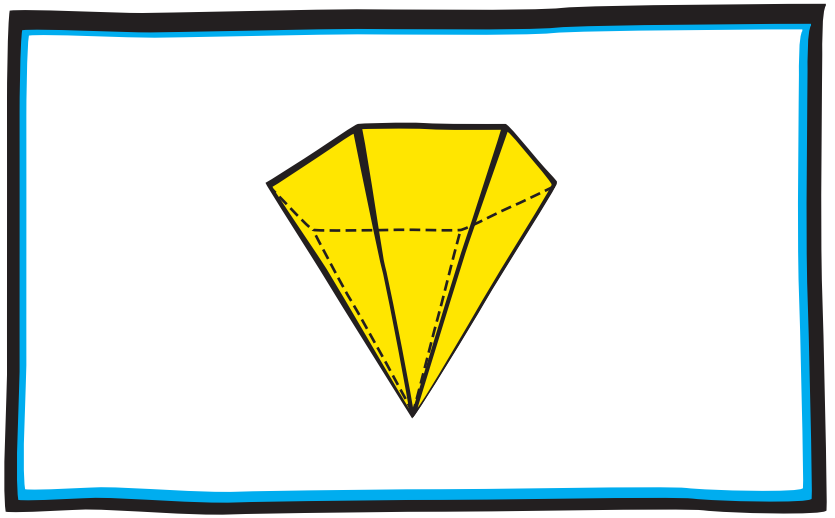
- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

A Solution:

A **hexagonal pyramid** is a solid that has one hexagonal base and six triangular lateral faces. So, the solid shown is a hexagonal pyramid.

Each card for your group should have this solid. If you do not see a hexagonal pyramid, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
36	14	5	34
45	27	20	41
34	16	34	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

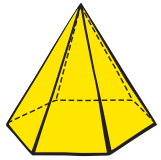
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 45, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 9
1	4 6
2	0 7
3	4 4 4 6
4	1 5

Key: 1 | 4 = 14 songs

C

It costs $37.50 for 5 tickets to the movies. Write and solve a proportion to determine how much 6 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

C Solution:

Write and solve a proportion.

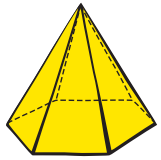
$$\frac{37.50}{5} = \frac{x}{6}$$ ← dollars, ← tickets

$37.50 \cdot 6 = 5 \cdot x$ **Cross Products Property**

$225 = 5x$ **Multiply.**

$45 = x$ **Divide.**

It costs $45 for 6 tickets to the movies.



D

Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = -2$ and $y = 1$.

3 min

Your next card will look like this.

$45.00

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute -2 for x and 1 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

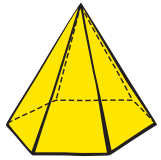
$$= (-2)^2 - |1 - 2| + \frac{12}{-2}$$

$$= 4 - |-1| + (-6)$$

$$= 4 - 1 + (-6)$$

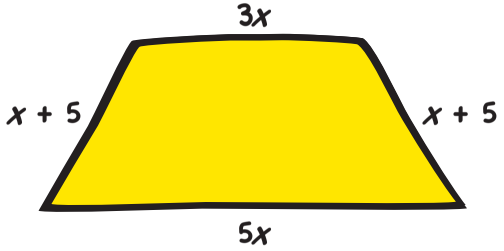
$$= 4 + (-1) + (-6)$$

$$= -3$$



E

The perimeter of the trapezoid is 100.
What is the value of x?



4 min

Your next card will look like this.

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E **Solution:**

P = Sum of side lengths

$100 = (x + 5) + 3x + (x + 5) + 5x$

$100 = 10x + 10$

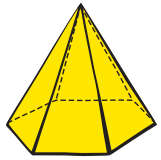
$-10 \quad -10$

$90 = 10x$

$\frac{90}{10} = \frac{10x}{10}$

$9 = x$

The value of x is 9.



6

F Graph the line that passes through the two points (-2, 2) and (3, 0). Then find the slope of the line.

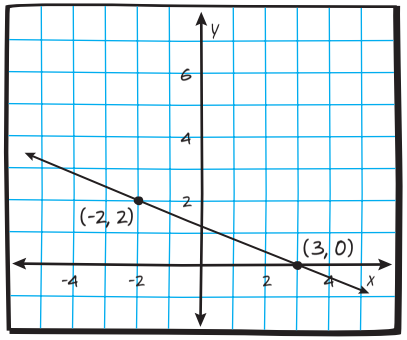
3 min

Your next card will look like this.

Key Ideas

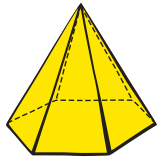
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F **Solution:**



$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{-2}{5}$$

The slope of the line is $-\frac{2}{5}$.



$$-\frac{2}{5}$$

G What is the difference of $-1\frac{3}{10}$ and $2\frac{4}{5}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G **Solution:**

$-1\frac{3}{10} - 2\frac{4}{5}$

$= -1\frac{3}{10} + \left(-2\frac{4}{5}\right)$

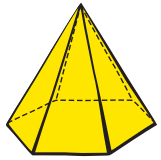
$= -\frac{13}{10} + \left(-\frac{14}{5}\right)$

$= -\frac{13}{10} + \left(-\frac{28}{10}\right)$

$= -\frac{41}{10}$

$= -4\frac{1}{10}$

The difference is $-4\frac{1}{10}$.



$-4\frac{1}{10}$

H Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.

1 in. ≈ 2.54 cm

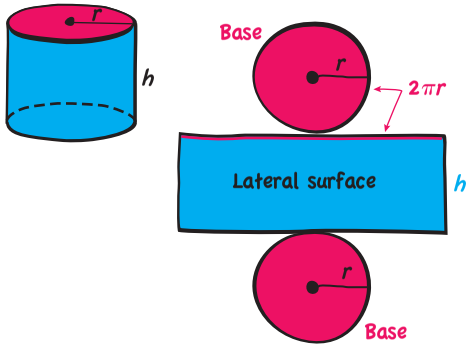
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 20.32 centimeters to inches.

$20.32 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 8 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

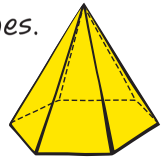
$= 2\pi(8)^2 + 2\pi(8)(9)$

$= 128\pi + 144\pi$

$= 272\pi$

$\approx 854.1 \text{ in.}^2$

The surface area is about 854.1 square inches.



854.1 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)

Triangle B: (0, 0), (6, 0), (0, 9)

Triangle C: (0, 0), (6, 0), (0, 6)

5 min

Congratulations!
Once you have checked the solution with your teacher, your group is all done!

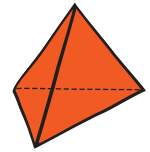
Key Ideas

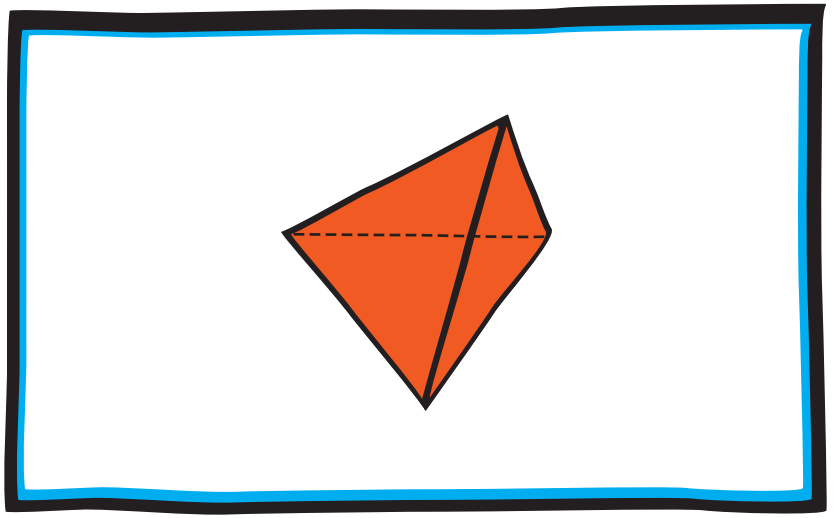
- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

A Solution:

A **triangular pyramid** is a solid that has one triangular base and three triangular lateral faces. So, the solid shown is a triangular pyramid.

Each card for your group should have this solid. If you do not see a triangular pyramid, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
9	14	5	63
45	49	20	17
60	24	31	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

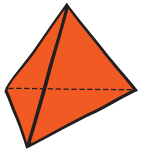
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 63, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 9 9
1	4 7
2	0 4
3	1
4	5 9
5	
6	0 3

Key: 1 | 4 = 14 songs

C

It costs $41.25 for 5 tickets to the movies. Write and solve a proportion to determine how much 8 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

C Solution:

Write and solve a proportion.

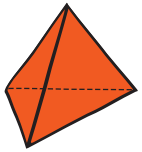
$$\frac{41.25}{5} = \frac{x}{8}$$ ← dollars, ← tickets

$41.25 \cdot 8 = 5 \cdot x$ **Cross Products Property**

$330 = 5x$ **Multiply.**

$66 = x$ **Divide.**

It costs $66 for 8 tickets to the movies.



D

Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = 1$ and $y = -3$.

3 min

Your next card will look like this.

00.99$

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute 1 for x and -3 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

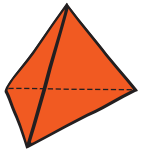
$$= 1^2 - |(-3) - 2| + \frac{12}{1}$$

$$= 1 - |-5| + 12$$

$$= 1 - 5 + 12$$

$$= 1 + (-5) + 12$$

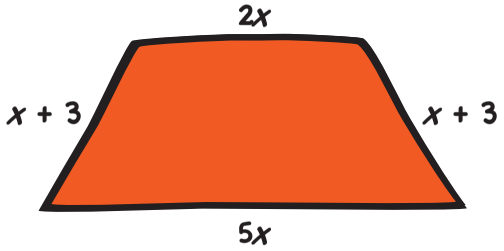
$$= 8$$



8

E

The perimeter of the trapezoid is 42.
What is the value of x?



4 min

Your next card will look like this.

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E Solution:

P = Sum of side lengths

$42 = (x + 3) + 2x + (x + 3) + 5x$

$42 = 9x + 6$

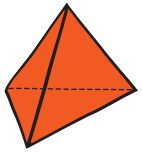
$-6 \quad -6$

$36 = 9x$

$\frac{36}{9} = \frac{9x}{9}$

$4 = x$

The value of x is 4.



$\overline{h}$

F

Graph the line that passes through the two points (-2, 2) and (1, -1). Then find the slope of the line.

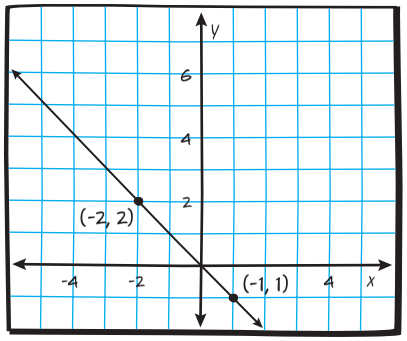
3 min

Your next card will look like this.

Key Ideas

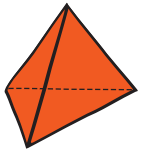
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F Solution:



$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{-3}{3} = -1$

The slope of the line is -1.



$\overline{1-}$

G

What is the difference of $-1\frac{4}{5}$ and $-3\frac{3}{10}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G Solution:

$-1\frac{4}{5} - \left(-3\frac{3}{10}\right)$

$= -1\frac{4}{5} + 3\frac{3}{10}$

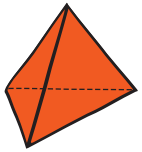
$= -\frac{9}{5} + \frac{33}{10}$

$= -\frac{18}{10} + \frac{33}{10}$

$= \frac{15}{10}$

$= 1\frac{1}{2}$

The difference is $1\frac{1}{2}$.



$1\frac{1}{2}$

H

Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.

1 in. ≈ 2.54 cm

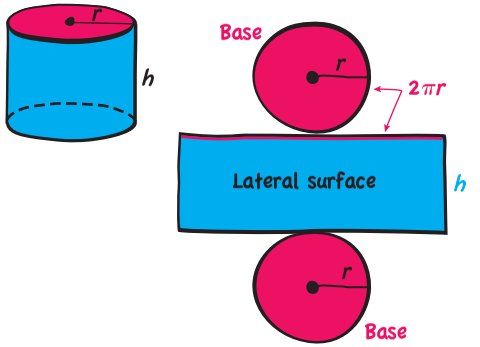
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 15.24 centimeters to inches.

$15.24 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 6 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

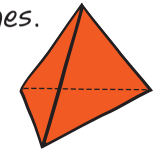
$= 2\pi(6)^2 + 2\pi(6)(8)$

$= 72\pi + 96\pi$

$= 168\pi$

$\approx 527.5 \text{ in.}^2$

The surface area is about 527.5 square inches.



527.5 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)

Triangle B: (0, 0), (6, 0), (0, 9)

Triangle C: (0, 0), (6, 0), (0, 6)

5 min

Congratulations!
Once you have checked the solution with your teacher, your group is all done!

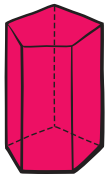
Key Ideas

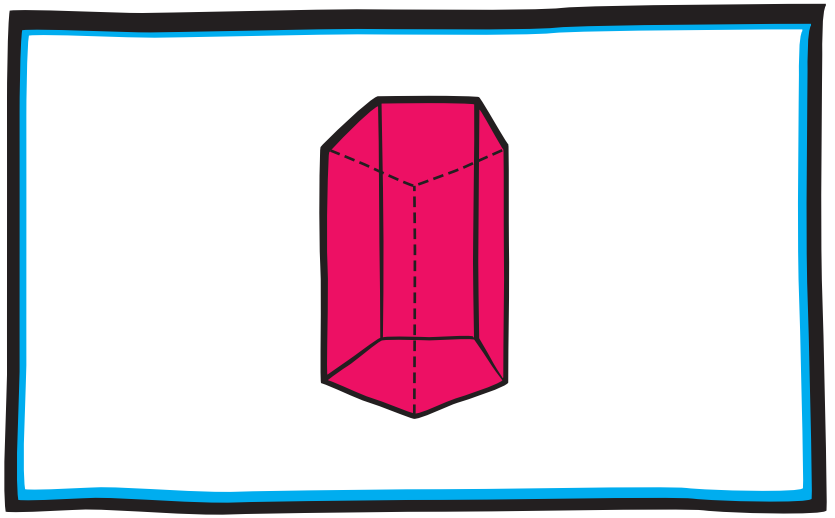
- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

A Solution:

A **pentagonal prism** is a solid that has two parallel, congruent pentagonal bases. The other faces are parallelograms. So, the solid shown is a pentagonal prism.

Each card for your group should have this solid. If you do not see a pentagonal prism, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
8	14	5	63
45	31	20	48
35	17	31	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

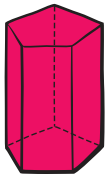
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 63, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 8 9
1	4 7
2	0
3	1 1 5
4	5 8
5	
6	3

Key: 1 | 4 = 14 songs

C

It costs $41.25 for 5 tickets to the movies. Write and solve a proportion to determine how much 3 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

C Solution:

Write and solve a proportion.

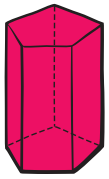
$$\frac{41.25}{5} = \frac{x}{3}$$ ← dollars, ← tickets

$41.25 \cdot 3 = 5 \cdot x$ **Cross Products Property**

$123.75 = 5x$ **Multiply.**

$24.75 = x$ **Divide.**

It costs $24.75 for 3 tickets to the movies.



$24.75

D

Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = -1$ and $y = 2$.

3 min

Your next card will look like this.

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute -1 for x and 2 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

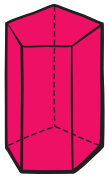
$$= (-1)^2 - |2 - 2| + \frac{12}{-1}$$

$$= 1 - |0| + (-12)$$

$$= 1 - 0 + (-12)$$

$$= 1 + (-12)$$

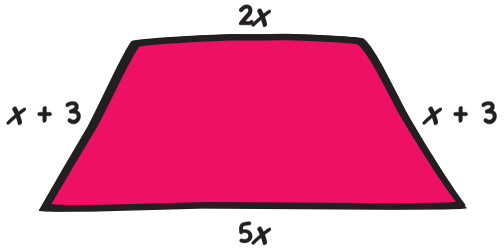
$$= -11$$



-11

E

The perimeter of the trapezoid is 78.
What is the value of x?



4 min

Your next card will look like this.

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E **Solution:**

P = Sum of side lengths

$78 = (x + 3) + 2x + (x + 3) + 5x$

$78 = 9x + 6$

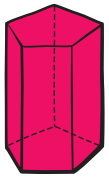
$-6 \quad -6$

$72 = 9x$

$\frac{72}{9} = \frac{9x}{9}$

$8 = x$

The value of x is 8.



$\overline{8}$

F Graph the line that passes through the two points (-2, 2) and (0, -2). Then find the slope of the line.

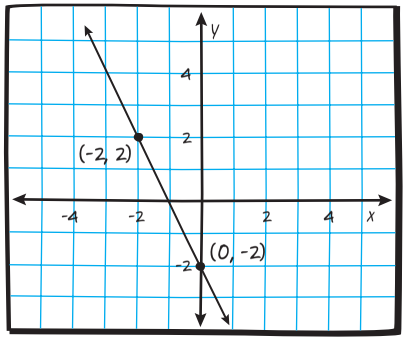
3 min

Your next card will look like this.

Key Ideas

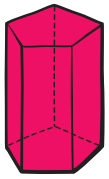
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F **Solution:**



$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{-4}{2} = -2$$

The slope of the line is -2.



$-\overline{2}$

G What is the difference of $-1\frac{7}{10}$ and $2\frac{4}{5}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G **Solution:**

$-1\frac{7}{10} - 2\frac{4}{5}$

$= -1\frac{7}{10} + \left(-2\frac{4}{5}\right)$

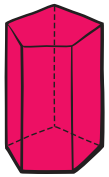
$= -\frac{17}{10} + \left(-\frac{14}{5}\right)$

$= -\frac{17}{10} + \left(-\frac{28}{10}\right)$

$= -\frac{45}{10}$

$= -4\frac{1}{2}$

The difference is $-4\frac{1}{2}$.



$-4\frac{1}{2}$

H Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.

1 in. ≈ 2.54 cm

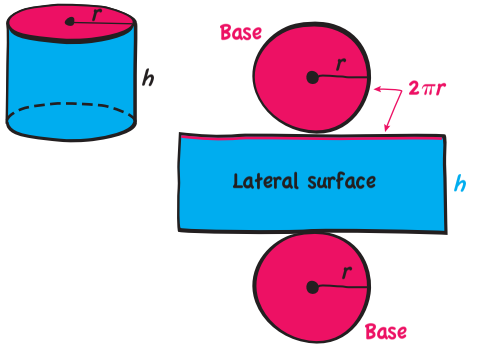
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 17.78 centimeters to inches.

$17.78 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 7 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

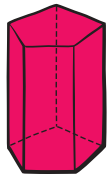
$= 2\pi(7)^2 + 2\pi(7)(8)$

$= 98\pi + 112\pi$

$= 210\pi$

$\approx 659.4 \text{ in.}^2$

The surface area is about 659.4 square inches.



659.4 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)

Triangle B: (0, 0), (6, 0), (0, 9)

Triangle C: (0, 0), (6, 0), (0, 6)

5 min

Congratulations!
Once you have checked the solution with your teacher, your group is all done!

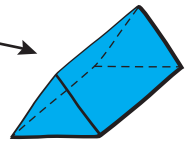
Key Ideas

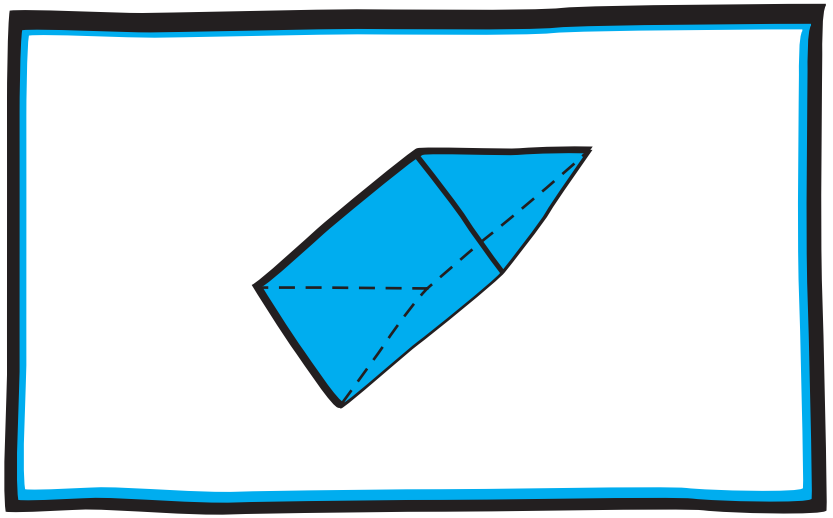
- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

A Solution:

A **triangular prism** is a solid that has two parallel, congruent triangular bases. The other faces are parallelograms. So, the solid shown is a an triangular prism.

Each card for your group should have this solid. If you do not see a triangular prism, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
33	14	5	63
45	43	20	5
60	15	31	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

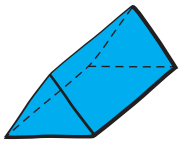
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 63, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 5 9
1	4 5
2	0
3	1 3
4	3 5
5	
6	0 3

Key: 1 | 4 = 14 songs

C

It costs $41.25 for 5 tickets to the movies. Write and solve a proportion to determine how much 4 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

C Solution:

Write and solve a proportion.

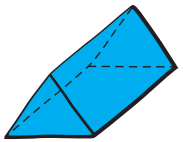
$$\frac{41.25}{5} = \frac{x}{4}$$ ← dollars, ← tickets

$41.25 \cdot 4 = 5 \cdot x$ **Cross Products Property**

$165 = 5x$ **Multiply.**

$33 = x$ **Divide.**

It costs $33 for 4 tickets to the movies.



$33.00

D

Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = -1$ and $y = 3$.

3 min

Your next card will look like this.

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute -1 for x and 3 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

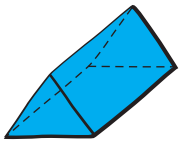
$$= (-1)^2 - |3 - 2| + \frac{12}{-1}$$

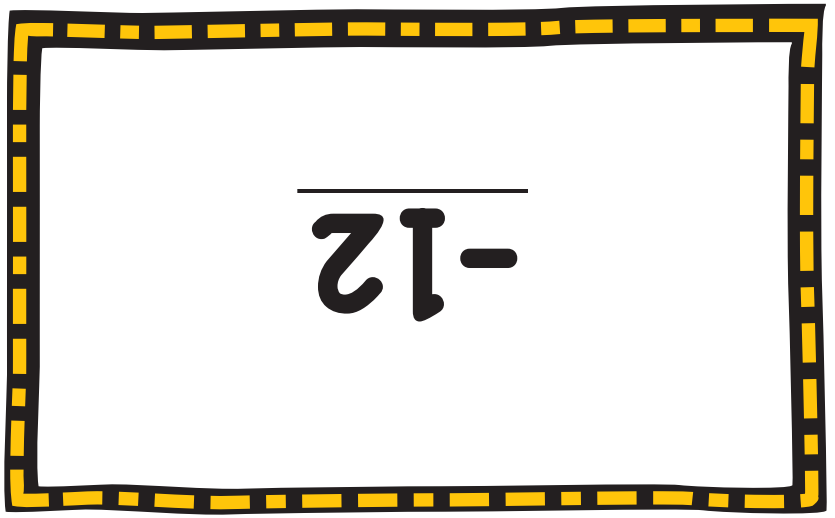
$$= 1 - |1| + (-12)$$

$$= 1 - 1 + (-12)$$

$$= 1 + (-1) + (-12)$$

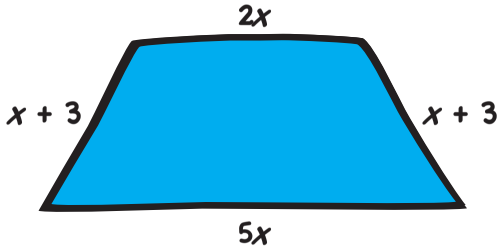
$$= -12$$





E

The perimeter of the trapezoid is 60.
What is the value of x?



Your next card will look like this.

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E **Solution:**

P = Sum of side lengths

$60 = (x + 3) + 2x + (x + 3) + 5x$

$60 = 9x + 6$

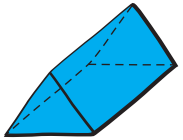
$-6 \quad -6$

$54 = 9x$

$\frac{54}{9} = \frac{9x}{9}$

$6 = x$

The value of x is 6.



9

F Graph the line that passes through the two points (-2, 2) and (1, 1). Then find the slope of the line.

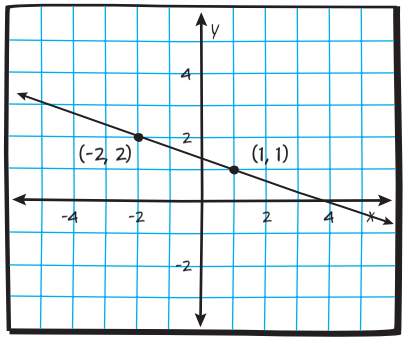
3 min

Your next card will look like this.

Key Ideas

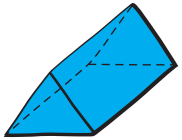
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F **Solution:**



$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{-1}{3}$$

The slope of the line is $-\frac{1}{3}$.



$$\frac{\varepsilon}{1} -$$

G What is the difference of $-1\frac{4}{5}$ and $3\frac{3}{10}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G **Solution:**

$-1\frac{4}{5} - 3\frac{3}{10}$

$= -1\frac{4}{5} + \left(-3\frac{3}{10}\right)$

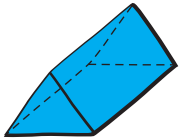
$= -\frac{9}{5} + \left(-\frac{33}{10}\right)$

$= -\frac{18}{10} + \left(-\frac{33}{10}\right)$

$= -\frac{51}{10}$

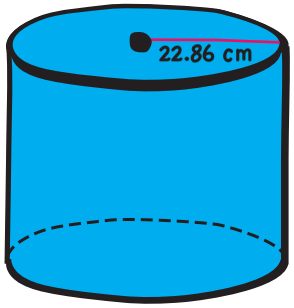
$= -5\frac{1}{10}$

The difference is $-5\frac{1}{10}$.



$-5\frac{1}{10}$

H Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.



1 in. ≈ 2.54 cm

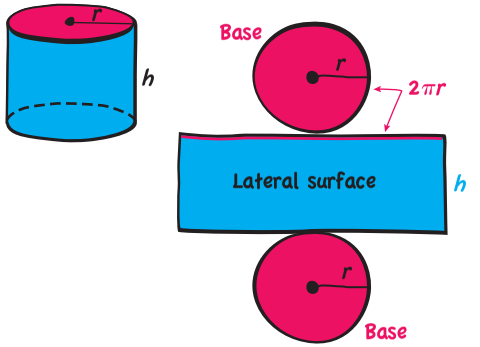
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 22.86 centimeters to inches.

$22.86 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 9 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

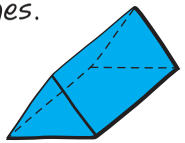
$= 2\pi(9)^2 + 2\pi(9)(6)$

$= 162\pi + 108\pi$

$= 270\pi$

$\approx 847.8 \text{ in.}^2$

The surface area is about 847.8 square inches.



847.8 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)
Triangle B: (0, 0), (6, 0), (0, 9)
Triangle C: (0, 0), (6, 0), (0, 6)

5 min

Congratulations!
Once you have checked the solution with your teacher, your group is all done!

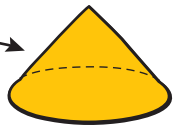
Key Ideas

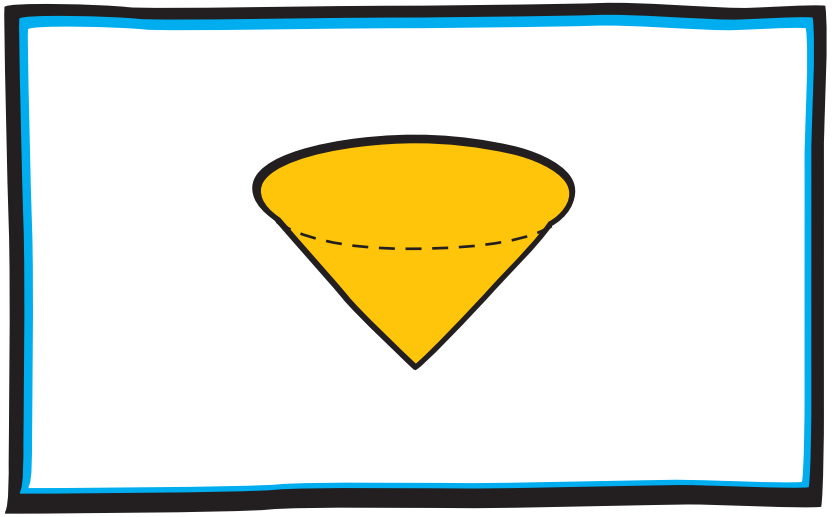
- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

A Solution:

A **cone** is a solid that has one circular base and one vertex. So, the solid shown is a cone.

Each card for your group should have this solid. If you do not see a cone, go back and try again.





B

Make a stem-and-leaf plot of the number of songs downloaded.

Songs Downloaded			
41	14	5	63
45	61	20	15
27	5	31	9

4 min

Your next card will look like this.

Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

B Solution:

To make a stem-and-leaf plot:

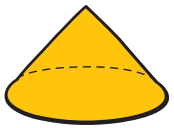
1.) Order the data.

2.) Choose the stems and the leaves. Because the data values range from 5 to 63, use the *tens* digits for the stems and the *ones* digits for the leaves.

3.) Write the stems to the *left* of the vertical line.

4.) Write the leaves for each stem to the *right* of the vertical line.

5.) Create a title and a key.



Songs Downloaded

Stem	Leaf
0	5 5 9
1	4 5
2	0 7
3	1
4	1 5
5	
6	1 3

Key: 1 | 4 = 14 songs

C

It costs $41.25 for 5 tickets to the movies. Write and solve a proportion to determine how much 9 tickets cost.

3 min

Your next card will look like this.

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

C **Solution:**

Write and solve a proportion.

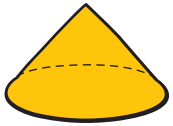
$$\frac{41.25}{5} = \frac{x}{9}$$ ← dollars, ← tickets

$41.25 \cdot 9 = 5 \cdot x$ **Cross Products Property**

$371.25 = 5x$ **Multiply.**

$74.25 = x$ **Divide.**

It costs $74.25 for 9 tickets to the movies.



$74.25

D Evaluate the expression

$$x^2 - |y - 2| + \frac{12}{x}$$

when $x = 1$ and $y = -2$.

3 min

Your next card will look like this.

Key Idea

Use the **order of operations** when evaluating an expression.

D Solution:

Substitute 1 for x and -2 for y. Then simplify.

$$x^2 - |y - 2| + \frac{12}{x}$$

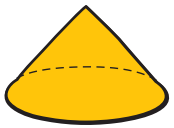
$$= 1^2 - |-2 - 2| + \frac{12}{1}$$

$$= 1 - |-4| + 12$$

$$= 1 - 4 + 12$$

$$= 1 + (-4) + 12$$

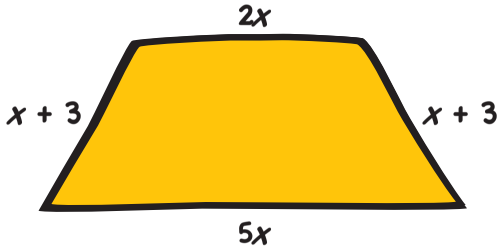
$$= 9$$



6

E

The perimeter of the trapezoid is 96.
What is the value of x?



4 min

Your next card will look like this.

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

E **Solution:**

P = Sum of side lengths

$96 = (x + 3) + 2x + (x + 3) + 5x$

$96 = 9x + 6$

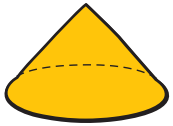
$-6 \quad -6$

$90 = 9x$

$\frac{90}{9} = \frac{9x}{9}$

$10 = x$

The value of x is 10.



$\overline{01}$

F Graph the line that passes through the two points (-2, 2) and (3, 4). Then find the slope of the line.

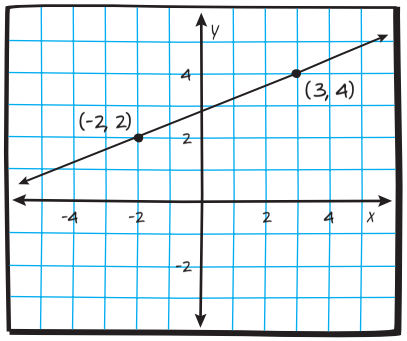
3 min

Your next card will look like this.

Key Ideas

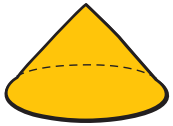
- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

F **Solution:**



$$\text{slope} = \frac{\text{change in } y}{\text{change in } x} = \frac{2}{5}$$

The slope of the line is $\frac{2}{5}$.



$\frac{2}{5}$

G What is the difference of $1\frac{7}{10}$ and $-2\frac{4}{5}$?

2 min

Your next card will look like this.

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

G **Solution:**

$1\frac{7}{10} - \left(-2\frac{4}{5}\right)$

$= 1\frac{7}{10} + 2\frac{4}{5}$

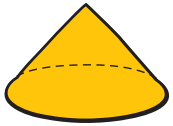
$= \frac{17}{10} + \frac{14}{5}$

$= \frac{17}{10} + \frac{28}{10}$

$= \frac{45}{10}$

$= 4\frac{1}{2}$

The difference is $4\frac{1}{2}$.



$4\frac{1}{2}$

H Find the surface area of the cylinder in square inches. Round your answer to the nearest tenth.

1 in. ≈ 2.54 cm

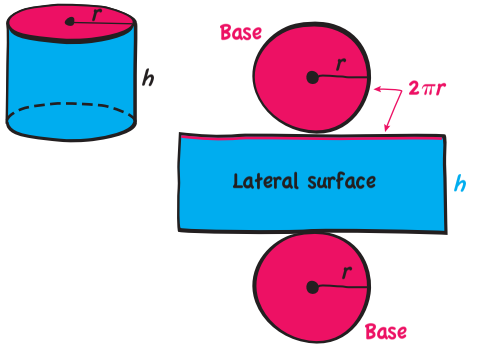
5 min

Your next card will look like this.

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$



H Solution:

First, convert 12.7 centimeters to inches.

$12.7 \text{ cm} \times \frac{1 \text{ in.}}{2.54 \text{ cm}} \approx 5 \text{ in.}$

Then, find the surface area.

$S = 2\pi r^2 + 2\pi rh$

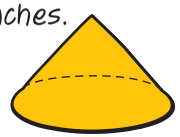
$= 2\pi(5)^2 + 2\pi(5)(6)$

$= 50\pi + 60\pi$

$= 110\pi$

$\approx 345.4 \text{ in.}^2$

The surface area is about 345.4 square inches.



345.4 in.^2

I

In a coordinate plane, draw the figures with the given vertices. Which figures are similar? Explain your reasoning.

Triangle A: (0, 0), (9, 0), (0, 9)

Triangle B: (0, 0), (6, 0), (0, 9)

Triangle C: (0, 0), (6, 0), (0, 6)

5 min

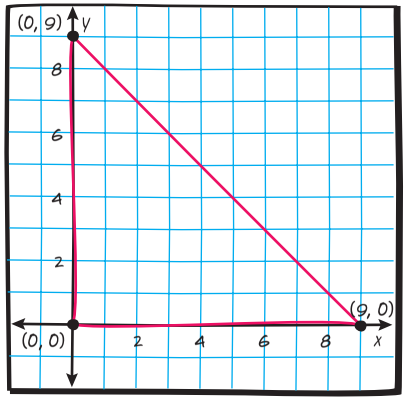
Congratulations!
Once you have checked the solution with your teacher, your group is all done!

Key Ideas

- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.

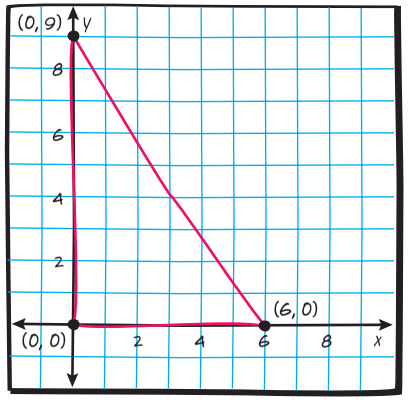
I Solution:

Triangle A



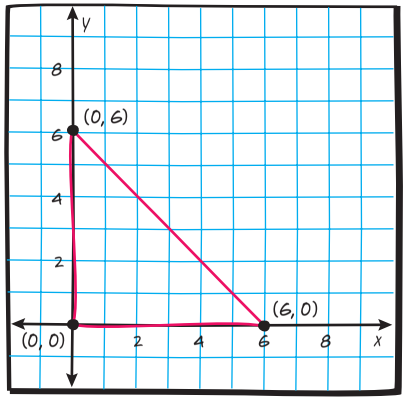
$$\frac{\text{Leg 1 of } A}{\text{Leg 2 of } A} = \frac{9}{9} = 1$$

Triangle B



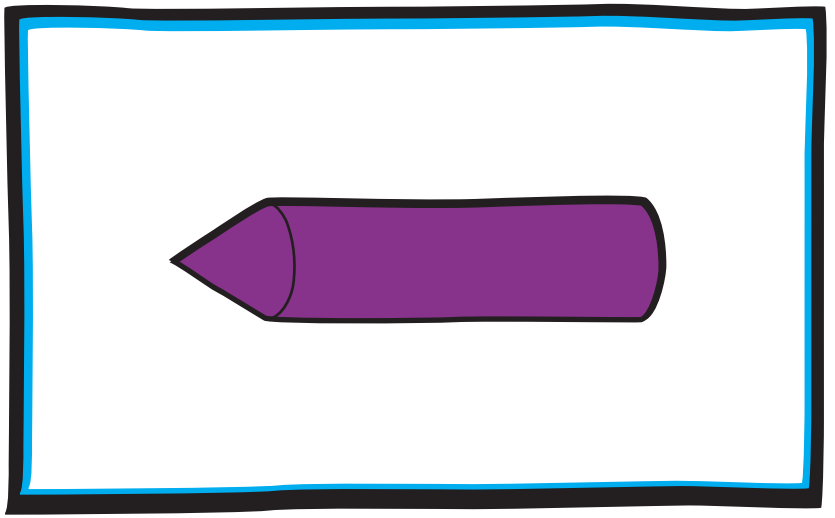
$$\frac{\text{Leg 1 of } B}{\text{Leg 2 of } B} = \frac{6}{9} = \frac{2}{3}$$

Triangle C



$$\frac{\text{Leg 1 of } C}{\text{Leg 2 of } C} = \frac{6}{6} = 1$$

Triangles A and C are similar because corresponding side lengths are proportional and corresponding angles have the same measure



Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

Songs Downloaded

Stem	Leaf
0	5 8 8 9
1	2 4 5 8
2	0
3	1 4
4	5

Key: 1 | 4 = 14 songs

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

$7.50

Key Idea

Use the **order of operations** when evaluating an expression.

$\frac{1}{2}$

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

Reminder

$\overline{t}$

Key Ideas

- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

Reminder

$$\frac{2}{5} - \frac{1}{2}$$

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

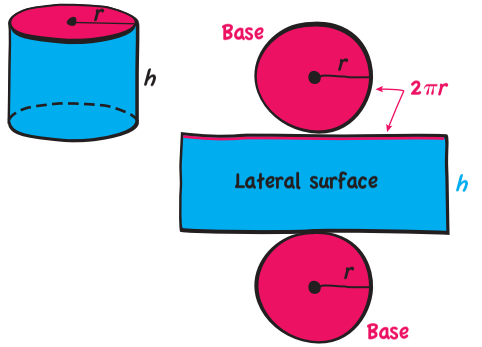
Reminder

$\frac{01}{1}$ 1

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

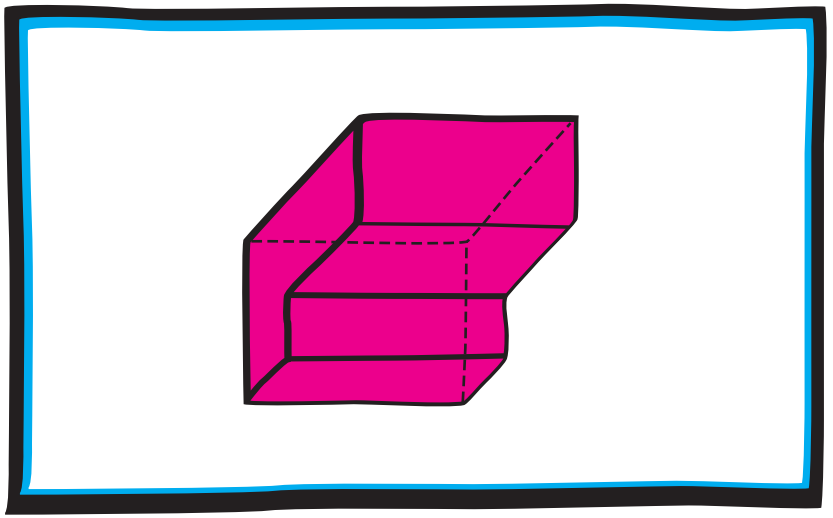
Surface Area: $S = 2\pi r^2 + 2\pi rh$



$1492.2\ \text{in.}^2$

Key Ideas

- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.



Key Idea

A **stem-and-leaf** plot uses the digits of data values to organize a data set. Each data value is broken into a stem (digit or digits on the left) and a leaf (digit or digits on the right).

Songs Downloaded

Stem	Leaf
0	5 9 9
1	2 2 3 4
2	0 5
3	1 4
4	5

Key: 1 | 4 = 14 songs

Key Ideas

- A **proportion** is an equation stating that two ratios are equivalent.
- To solve a proportion, use the **Multiplication Property of Equality** or the **Cross Products Property**.

$8.25

Key Idea

Use the **order of operations** when evaluating an expression.

Reminder

$\overline{5-}$

Key Ideas

- The **perimeter** of a figure is the sum of the side lengths.
- Solving an equation
  1. Combine like terms.
  2. Undo addition and subtraction.
  3. Undo multiplication and division.

$\overline{L}$

Key Ideas

- An **ordered pair** (x, y) is a pair of numbers that is used to locate a point in a coordinate plane.
- **Slope** is the rate of change between any two points on a line.
- To find the slope of a line, find the ratio of the vertical change to the horizontal change.

Reminder

$3\frac{1}{2}$

Key Ideas

- To subtract a rational number, add its **opposite**.
- To add rational numbers, rewrite each number using the **LCD** (least common denominator), add the numerators and simplify.

$-3\frac{1}{2}$

Key Idea

The surface area of a cylinder is the sum of the areas of the bases and the lateral surface.

Surface Area: $S = 2\pi r^2 + 2\pi rh$

$571.8\ in.^2$

Key Ideas

- Figures that have the same shape but not necessarily the same size are called **similar figures**.
- Two figures are **similar** if corresponding side lengths are proportional, and corresponding angles have the same measure.