Big Ideas Math®

A New You

▶ **Materials:**
- Polygon cards
- Transformation cards
- Pencil
- Paper
- Answer sheet

▶ **Directions:**

Students play as a group and then form different pairs each round. Each student needs an answer sheet. All the game cards should be shuffled together.

1. Each student draws a game card.
2. Start the timer.
3. Students with a polygon card find a partner with a transformation card. Students with a transformation card find a partner with a polygon card.
4. Partners record the polygon number, the transformation, and the coordinates of the vertices of the image on their answer sheets.
5. Students then find a new partner.
6. Repeat steps 3–5 until the student completely fills the answer sheet.

Once a student completes his answer sheet, he records the time on the answer sheet. For every correct image, the student subtracts 5 seconds from the total time. For every incorrect image, the student adds 30 seconds to the total time. The resulting answer is the final score.

▶ **Who Wins?**

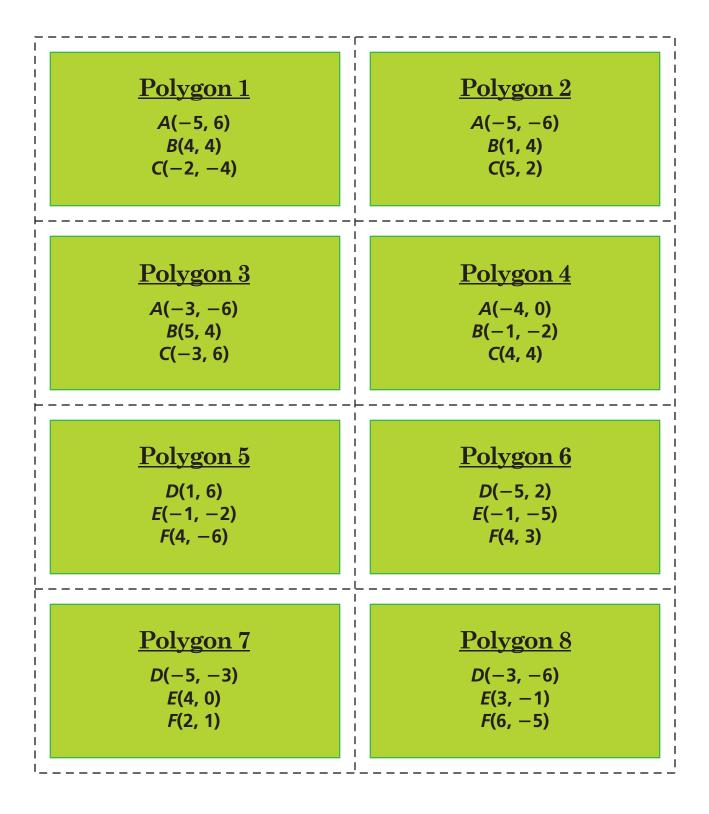The student with the lowest final score wins.

▶ **Tip:**

The timer should be large and visible for all students.

▶ **Variation:**

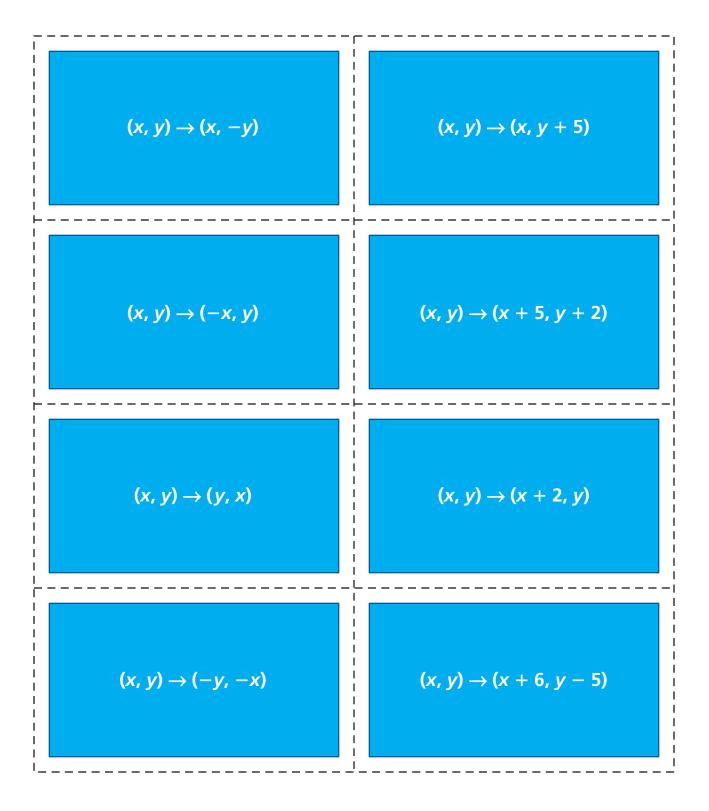Students could also graph the preimage and its image after the transformation.

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Polygon 1

A(−5, 6)
B(4, 4)
C(−2, −4)

Polygon 2

A(−5, −6)
B(1, 4)
C(5, 2)

Polygon 3

A(−3, −6)
B(5, 4)
C(−3, 6)

Polygon 4

A(−4, 0)
B(−1, −2)
C(4, 4)

Polygon 5

D(1, 6)
E(−1, −2)
F(4, −6)

Polygon 6

D(−5, 2)
E(−1, −5)
F(4, 3)

Polygon 7

D(−5, −3)
E(4, 0)
F(2, 1)

Polygon 8

D(−3, −6)
E(3, −1)
F(6, −5)

Polygon 9

Q(−4, 3)
R(4, 6)
S(6, −3)
T(−4, −3)

Polygon 10

Q(3, −4)
R(4, 0)
S(−5, 6)
T(−1, −2)

Polygon 11

Q(−1, 5)
R(−3, 6)
S(−5, −1)
T(−1, −5)

Polygon 12

Q(−3, −2)
R(5, 6)
S(−5, 5)
T(3, −2)

Polygon 13

W(0, 6)
X(2, 6)
Y(−4, −1)
Z(3, −2)

Polygon 14

W(6, 3)
X(5, −3)
Y(2, 1)
Z(−3, −2)

Polygon 15

W(−6, 4)
X(−4, 5)
Y(−1, −5)
Z(2, 2)

Polygon 16

W(0, 0)
X(0, 5)
Y(5, 1)
Z(2, −4)

$(x, y) \rightarrow (x, -y)$

$(x, y) \rightarrow (x, y + 5)$

$(x, y) \rightarrow (-x, y)$

$(x, y) \rightarrow (x + 5, y + 2)$

$(x, y) \rightarrow (y, x)$

$(x, y) \rightarrow (x + 2, y)$

$(x, y) \rightarrow (-y, -x)$

$(x, y) \rightarrow (x + 6, y - 5)$

$(x, y) \rightarrow (4x, 4y)$

$(x, y) \rightarrow (-y, x)$

$(x, y) \rightarrow (-3x, -3y)$

$(x, y) \rightarrow (y, -x)$

$(x, y) \rightarrow \left(-\dfrac{1}{4}x, -\dfrac{1}{4}y\right)$

$(x, y) \rightarrow \left(\dfrac{1}{2}x, \dfrac{1}{2}y\right)$

$(x, y) \rightarrow \left(\dfrac{1}{3}x, \dfrac{1}{3}y\right)$

$(x, y) \rightarrow (-x, -y)$

Answer sheet for A New You

Polygon #	Transformation	Vertices of Image

Time Elapsed: