

Key Concept and Vocabulary

A **square root** of a number is a number that when multiplied by itself, equals the given number. Every positive number has a positive *and* a negative square root. A **perfect square** is a number with integers as its square roots.

Positive Square Root: $\sqrt{9} = 3$

Negative Square Root: $-\sqrt{9} = -3$

Both Square Roots: $\pm\sqrt{9} = \pm 3$



Skill Examples

1. $\sqrt{36}$

Because $6^2 = 36$, $\sqrt{36} = \sqrt{6^2} = 6$.

2. $-\sqrt{144}$

Because $12^2 = 144$,
 $-\sqrt{144} = -\sqrt{12^2} = -12$.

3. $\pm\sqrt{3.24}$

Because $1.8^2 = 3.24$,
 $\pm\sqrt{3.24} = \pm\sqrt{1.8^2} = 1.8$ and -1.8 .

Application Example

4. The area of a square table top is 256 square inches. What is the length of one side of the table top?

$$A = s^2$$

$$256 = s^2$$

$$\sqrt{256} = \sqrt{s^2}$$

$$16 = s$$

- Because the length of one side of the table top is 16 inches.

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Find the square root(s).

5. $-\sqrt{64} =$ _____ 6. $\sqrt{121} =$ _____ 7. $\pm\sqrt{625} =$ _____ 8. $\sqrt{4} =$ _____

9. $\pm\sqrt{289} =$ _____ 10. $-\sqrt{196} =$ _____ 11. $\sqrt{0.25} =$ _____ 12. $-\sqrt{1.69} =$ _____

13. $\pm\sqrt{\frac{16}{49}} =$ _____ 14. $-\sqrt{\frac{81}{100}} =$ _____ 15. $\pm\sqrt{2.25} =$ _____ 16. $\sqrt{\frac{9}{400}} =$ _____

Evaluate the expression.

17. $8\sqrt{9} - 5 =$ _____ 18. $7 + 10\sqrt{\frac{1}{25}} =$ _____ 19. $\sqrt{\frac{24}{6}} + 3 =$ _____

20. $6.2 + \sqrt{6.76} =$ _____ 21. $7(\sqrt{400} - 9) =$ _____ 22. $2\left(\sqrt{\frac{147}{3}} - 1\right) =$ _____

23. **ROOM** The area of the floor of a square room is 441 square feet. What is the length of one side of the floor of the room?
