

LESSON

3

Squares and Square Roots

Review It!

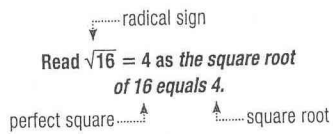
When you work with squares and square roots, remember these words:

square the product of a number and itself

square root one of two equal factors of a number

radical sign symbol for a root

perfect square a number whose square root is a whole number



Example 1 You can find the square root of a perfect square. Find $\sqrt{49}$.

Step 1 $49 = \underline{\quad} \times \underline{\quad}$, so $\sqrt{49} = \underline{\quad}$. **THINK** 49 is a perfect square.

So, the square root of 49 is $\underline{\quad}$.

Example 2 What is the best whole-number estimate of $\sqrt{8}$?

Step 1 Find the closest perfect square less than 8. **REMEMBER** A perfect square is the product of a whole number and itself.
 $4 < 8$

Step 2 Find the closest perfect square greater than 8.
 $8 < 9$

Step 3 Find the perfect square that is closer to 8. **THINK** $8 - 4 = 4$ and $9 - 8 = 1$.
 $4 < 8 < 9$

$\underline{\quad}$ is closer to 8, so $\sqrt{9}$ is closer to $\sqrt{8}$.

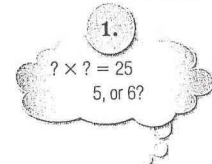
$\sqrt{9} = 3$, so the best whole-number estimate of $\sqrt{8}$ is $\underline{\quad}$.

Try It!

Find each square root.

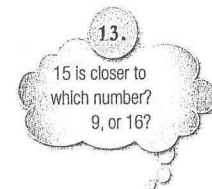


1. $\sqrt{25} = \underline{\quad}$
2. $\sqrt{100} = \underline{\quad}$
3. $\sqrt{49} = \underline{\quad}$
4. $\sqrt{1} = \underline{\quad}$
5. $\sqrt{169} = \underline{\quad}$
6. $\sqrt{4} = \underline{\quad}$
7. $\sqrt{64} = \underline{\quad}$
8. $\sqrt{144} = \underline{\quad}$
9. $\sqrt{9} = \underline{\quad}$
10. $\sqrt{16} = \underline{\quad}$
11. $\sqrt{36} = \underline{\quad}$
12. $\sqrt{81} = \underline{\quad}$



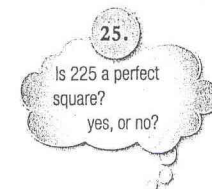
What is the BEST whole-number estimate of each square root?

13. $\sqrt{15} \underline{\quad}$
14. $\sqrt{140} \underline{\quad}$
15. $\sqrt{80} \underline{\quad}$
16. $\sqrt{62} \underline{\quad}$
17. $\sqrt{30} \underline{\quad}$
18. $\sqrt{3} \underline{\quad}$
19. $\sqrt{75} \underline{\quad}$
20. $\sqrt{122} \underline{\quad}$
21. $\sqrt{14} \underline{\quad}$
22. $\sqrt{63} \underline{\quad}$
23. $\sqrt{26} \underline{\quad}$
24. $\sqrt{46} \underline{\quad}$



Solve.

25. Nancy wants to make a square garden with an area of 225 square feet. How long should she make each side of the garden?



26. Paul made a square patio with an area of 900 square feet. What is the width of the patio?

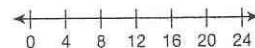
On Your Own!

Circle the best answer for each question.

- What is $\sqrt{25}$?
 - 5
 - 7
 - 9.5
 - 12.5
- What is $\sqrt{81}$?
 - 40.5
 - 10
 - 9
 - 8
- What is $\sqrt{100}$?
 - 10,000
 - 50
 - 25
 - 10
- What is the BEST whole-number estimate of $\sqrt{50}$?
 - 8
 - 7
 - 6
 - 5
- What is the BEST whole-number estimate of $\sqrt{70}$?
 - 35
 - 10
 - 9
 - 8
- What is the BEST whole-number estimate of $\sqrt{138}$?
 - 10
 - 11
 - 12
 - 13
- The area of a square shed is 64 square feet. How wide is the shed?
 - 4 ft
 - 8 ft
 - 16 ft
 - 32 ft
- The area of a square playground is 1,600 square feet. How wide is the playground?
 - 40 ft
 - 80 ft
 - 400 ft
 - 800 ft

9. What is $\sqrt{25^2}$?

10. Plot a point at $\sqrt{16}$ on the number line below.

**Math Words**

Fill in the blanks.

11. A square root shows a number under a _____

12. The numbers 1, 4, 9, 16, 25, are examples of _____

13. The opposite of squaring a number is taking the _____
