



Name _____ Date _____

Square Roots (Pages 382–384)

Numbers that can be written as $p \cdot p$ where p is an integer or a rational number, are called **perfect squares**. For example, 9, 25, 0.09, $\frac{4}{9}$, and $\frac{36}{81}$ are perfect squares.

Finding Square Roots	<ul style="list-style-type: none"> • When $n = r^2$, then r is a square root of n. • Notice that $36 = 6 \cdot 6$ and $36 = (-6) \cdot (-6)$, so both 6 and -6 are square roots of 36. Sometimes we want only the positive square root. • The positive square root of a number is called the principal square root. The symbol $\sqrt{\quad}$, called a radical sign, is used to indicate the principal square root. $\sqrt{36} = 6$ • Indicate the negative square root like this. $-\sqrt{36} = -6$
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EXAMPLES

A Find $\sqrt{900}$.

Ask: what number multiplied by itself gives 900?

$30 \cdot 30 = 900$, so $\sqrt{900} = 30$.

B Find $-\sqrt{\frac{25}{121}}$.

Notice that you are finding the negative square root.

$-\sqrt{\frac{25}{121}} = -\frac{5}{11}$

Try These Together

1. Find $\sqrt{49}$.

HINT: Find n if $n \cdot n = 49$.

2. Find $-\sqrt{16}$.

HINT: This root will be a negative integer.

PRACTICE

Find each square root.

3. $\sqrt{144}$

4. $\sqrt{\frac{9}{25}}$

5. $\sqrt{676}$

6. $-\sqrt{225}$

7. $-\sqrt{\frac{36}{144}}$

8. $\sqrt{3.61}$

9. $\sqrt{\frac{169}{400}}$

10. $\sqrt{0.81}$

Solve each equation.

11. $x^2 = 64$

12. $x^2 = 5.76$

13. $x^2 = \frac{9}{16}$



14. Standardized Test Practice You are arranging chairs for the school show.

You have 256 chairs to arrange in a square. How many rows of chairs would you need and how many chairs in each row would you have?

A 16; 16

B 20; 20

C 16; 20

D 4; 4

Answers: 1. 7 2. -4 3. 12 4. $\frac{5}{3}$ 5. 26 6. -15 7. $-\frac{2}{1}$ 8. 1.9 9. $\frac{20}{13}$ 10. 0.9 11. 8, -8 12. 2.4, -2.4 13. $\frac{4}{3}$, $-\frac{4}{3}$ 14. A