

Algebra 2

Review Ch. 6

$$x^2 \cdot x^3 = x^5$$

**Example 9**

Simplify  $a^{\frac{2}{3}} \cdot a^{\frac{1}{5}}$ .

$$a^{\frac{2}{3} + \frac{1}{5}} = a^{\frac{10+3}{15}} = a^{\frac{13}{15}}$$

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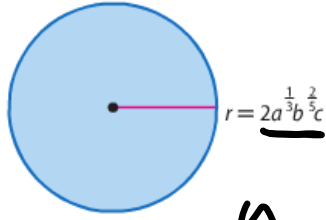
**Example 10**

Simplify  $\frac{2a}{\sqrt[3]{b}}$ .

$$\frac{2a}{\sqrt[3]{b}} \cdot \frac{\sqrt[3]{b^2}}{\sqrt[3]{b^2}} = \frac{2a\sqrt[3]{b^2}}{b}$$

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65. **GEOMETRY** What is the area of the circle?



$$C = \pi d$$

$$A = \pi r^2$$

$$A = \pi (2a^{1/3}b^{2/5}c)^2$$

$$A = \pi 4 a^{2/3} b^{4/5} c^2$$

$$A = 4\pi a^{2/3} b^{4/5} c^2$$

$\frac{1}{3} \cdot 2 = \frac{2}{3}$   
 $\frac{2}{5} \cdot 2 = \frac{4}{5}$   
 $1 \cdot 2 = 2$

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Given  $f(x) = 2x^2 + 4x - 3$  and  $g(x) = 5x - 2$ , find each function. (Lesson 6-1)

1.  $(f + g)(x) = 2x^2 + 9x - 5$

$2x^2 - x - 1$

3.  $(f \cdot g)(x)$

4.  $(\frac{f}{g})(x)$

$\frac{2x^2 + 4x - 3}{5x - 2}$

5.  $(f \circ g)(x)$

6.  $(g \circ f)(x)$

$\frac{2x^2 + 4x - 3}{5x - 2}$

$x \neq \frac{2}{5}$

$x \rightarrow [5(x) - 2] \xrightarrow{f} 2(5x-2)^2 + 4(5x-2) - 3$

$5x - 2 \quad 2(25x^2 - 20x + 4) + 4(5x - 2) - 3$

$5x - 2 \quad 50x^2 - 40x + 8 + 20x - 8 - 3$

$50x^2 - 20x - 3$   
 $f \circ g(x) =$

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Determine whether each pair of functions are inverse functions.

Write yes or no. (Lesson 6-2)

8.  $f(x) = 2x + 16$

$g(x) = \frac{1}{2}x - 8$

9.  $g(x) = 4x + 15$   
 $h(x) = \frac{1}{4}x - 15$

$y = 4x + 15 \rightarrow x = \frac{y - 15}{4}$   
 $\frac{4y}{4} = \frac{x - 15}{4}$   
 $y = \frac{1}{4}x - \frac{15}{4}$

no

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Find the inverse of each function, if it exists. (Lesson 6-2)

12.  $h(x) = \frac{2}{5}x + 8$

13.  $f(x) = \frac{4}{9}(x - 3)$

$y = \frac{2}{5}x + 8$   
 $x = \frac{5}{2}(y - 8)$   
 $y = \frac{5}{2}(x - 8)$

$y = \frac{5}{2}x - \frac{5}{2} \cdot 8$   
 $y = \frac{5}{2}x - 20$

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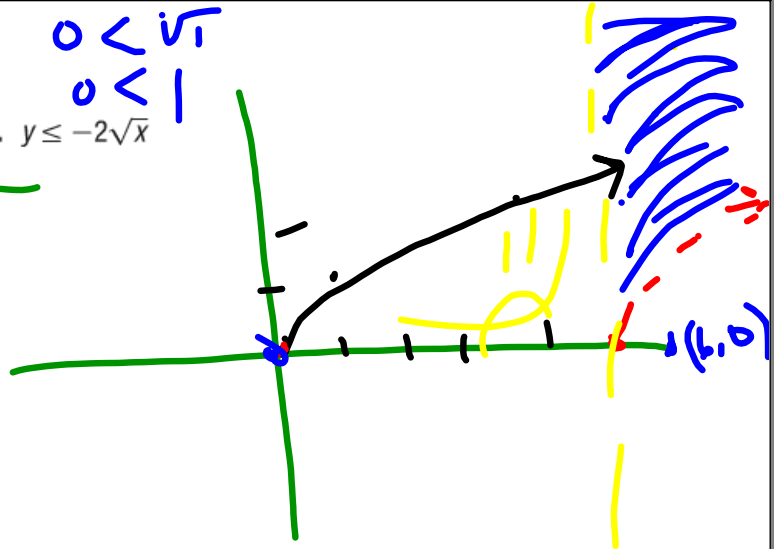
Graph each inequality. (Lesson 6-3)

17.  $y < \sqrt{x-5}$

18.  $y \leq -2\sqrt{x}$

$y = \sqrt{x-5}$

x	y
6	1
7	2

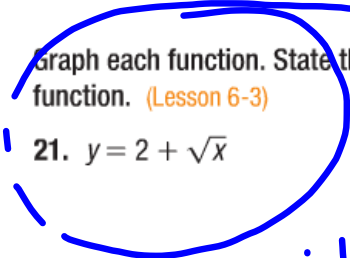


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Graph each function. State the domain and range of each function. (Lesson 6-3)

21.  $y = 2 + \sqrt{x}$

22.  $y = \sqrt{x+4} - 1$



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Simplify. (Lesson 6-4)

24.  $\pm\sqrt{121a^4b^{18}}$

25.  $\sqrt{(x^4 + 3)^{12}}$

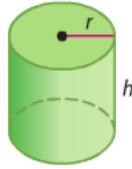
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28.  $\sqrt[3]{8(x + 4)^6}$

29.  $\sqrt[4]{16(y + x)^8}$

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30. **MULTIPLE CHOICE** The radius of the cylinder below is equal to the height of the cylinder. The radius  $r$  can be found using the formula  $r = \sqrt[3]{\frac{V}{\pi}}$ . Find the radius of the cylinder if the volume is 500 cubic inches. (Lesson 6-4)



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