Algebra 2
Review Ch. 6
Quiz 6.6-6.7
Test Ch. 6 tomorrow

Example 11

Solve $\sqrt{2x+9} - 2 = 5$.

$+2 \quad +2$

$\left(\sqrt{2x+9}\right)^2 = 7^2$

$2x+9 = 49$

$-9 \quad -9$

$2x = 40$

$x = 20$

$\sqrt{40+9} - 2 \stackrel{?}{=} 5$

$\sqrt{49}$

$7 - 2 = 5$

:)

69. $\sqrt{m+3} = \sqrt{2m+1}$

$m+3 = 2m+1$

$-m-1 \quad -m-1$

$2 = m$

$\sqrt{5} \stackrel{?}{=} \sqrt{4+1}$

67. $-\sqrt{x-11} = 3 - \sqrt{x}$

$-1 \quad -1 \quad -\sqrt{x}$

$\left(\sqrt{x-11}\right)^2 = \left(-3+\sqrt{x}\right)^2$

$-3+\sqrt{x}$

$-3+\sqrt{x}$

$-3\sqrt{x}+x$

$-3\sqrt{x}$

$x-11 = 9-6\sqrt{x}+x$

$-x \quad\quad -x$

$-11 = 9-6\sqrt{x}$

$-9 \quad -9$

$-20 = -6\sqrt{x}$

$\frac{-20}{-6} = \frac{-6\sqrt{x}}{-6}$

$\left(\frac{-10}{3}\right)^2 = \sqrt{x}$

$x = \frac{100}{9}$

$$-\sqrt{x-3}+5 \leq 8$$

Example 12

Solve $\sqrt{2x-5}+2>5$.

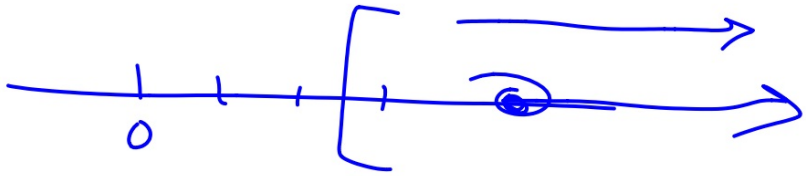
$-2 \quad -2$

$2x-5 \geq 0$

$2x \geq 5$

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

$x \geq 2.5$



$\sqrt{2x-5} > 3$

$2x-5 > 9$

$+5 \quad +5$

$2x > 14$

$x > 7$

Example 7

Simplify $2\sqrt[3]{18a^2b} \cdot 3\sqrt[3]{12ab^5}$.

$2(18a^2b)^{\frac{1}{3}} \cdot 3(12ab^5)^{\frac{1}{3}}$

$6(216a^3b^6)^{\frac{1}{3}}$

$6 \cdot 2 \cdot 3ab^2$

$36ab^2$

216

$8 \quad 27$

$2^3 \quad 3^3$

$2 \quad 3$

Example 8

Simplify $\sqrt{\frac{x^4}{y^5}}$.

$$\frac{\sqrt{x^4}}{\sqrt{y^5}} = \frac{x^2\sqrt{y}}{y^2\sqrt{y}\sqrt{y}} = \frac{x^2\sqrt{y}}{y^3}$$

Example 9

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

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

$a^{\frac{13}{15}}$

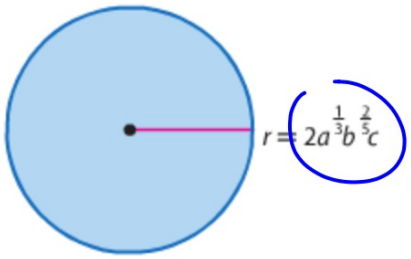
$\sqrt[15]{a^{13}}$

Example 10

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

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

65. GEOMETRY What is the area of the circle?



πr^2

$\pi (\quad)^2$

$\pi 2a^{\frac{1}{3}}b^{\frac{2}{5}}c \cdot 2a^{\frac{1}{3}}b^{\frac{2}{5}}c$

$4\pi a^{\frac{2}{3}}b^{\frac{4}{5}}c^2$

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

$5x-2=0$
$+2 \quad +2$
$5x = 2$
$x = \frac{2}{5}$

1. $(f+g)(x) = 2x^2+9x-5$
2. $(f-g)(x)$
3. $(f \cdot g)(x)$
4. $\left(\frac{f}{g}\right)(x)$ $\frac{2x^2+4x-3}{5x-2}$ $x \neq \frac{2}{5}$
5. $[f \circ g](x)$
6. $[g \circ f](x)$

g f

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

$2(25x^2-20x+4)+20x-8-3$

Determine whether each pair of functions are inverse functions. Write *yes* or *no*. (Lesson 6-2)

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

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

9. $g(x) = 4x + 15$

$h(x) = \frac{1}{4}x - 15$

$f^{-1}(x) =$

$y = 2x + 16$

$x = 2y + 16$

$-16 \quad -16$

$\frac{2y}{2} = \frac{x - 16}{2}$

$\frac{1}{2}x - 8$

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

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

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

Graph each inequality. (Lesson 6-3)

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

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

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

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

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

Simplify. (Lesson 6-4)

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

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

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

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

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)