

Warm Up

1) Find the inverse.

$$y = 2(x-4)^{5/3}$$

Solve.

$$2) \sqrt{x-6} = x-8$$

Homework Questions

*Solving ws

Jeopardy

Algebra 2 Trig Daily Learning Target Quiz
6.6 Solving

1.) Solve. $(x-4)^{\frac{2}{3}} - 9 = 16$	2.) Solve. $\frac{1}{2}x^{\frac{5}{2}} = 16$
3.) Solve. $\sqrt[3]{x} - 10 = -3$	4.) Solve. $\sqrt{x-6} = x-8$

Extra Credit

For all nonzero a and b , $\frac{(10a^2b^2)(-9a^2b^3)}{6a^2b^4} = ?$

A. $-15b$

B. $-15a^2b$

C. $-15a^2b^2$


D. $\frac{a^2b^2}{15}$

E. $\frac{12}{b}$

*You need a calculator for today's lesson.

6.1

60. **SHOT PUT** The shot used in men's shot put has a volume of about 905 cubic centimeters. Find the radius of the shot. (*Hint:* Use the formula $V = \frac{4}{3}\pi r^3$ for the volume of a sphere.) XXXXXXXXXX

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6.1

62. **INFLATION** If the average price of an item increases from p_1 to p_2 over a period of n years, the annual rate of inflation r (expressed as a decimal) is given by $r = \left(\frac{p_2}{p_1}\right)^{1/n} - 1$. Find the rate of inflation for each item in the table. Write each answer as a percent rounded to the nearest tenth.

Item	Price in 1950	Price in 1990
Butter (lb)	\$.7420	\$2.195
Chicken (lb)	\$.4430	\$1.087
Eggs (dozen)	\$.6710	\$1.356
Sugar (lb)	\$.0936	\$.4560

6.2

84. **AIRPLANE VELOCITY** The velocity v (in feet per second) of a jet can be approximated by the model

$$v = 8.8\sqrt{\frac{L}{A}}$$

where A is the area of the wings (in square feet) and L is the lift (in Newtons). Find the velocity of a jet with a wing area of 5.5×10^3 square feet and a lift of 1.4×10^7 Newtons. XXXXXXXXXX

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6.3

44. ★ **SHORT RESPONSE** The cost (in dollars) of producing x sneakers in a factory is given by $C(x) = 60x + 750$. The number of sneakers produced in t hours is given by $x(t) = 50t$. Find $C(x(t))$. Evaluate $C(x(5))$ and explain what this number represents.



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6.3


45. **MULTI-STEP PROBLEM** An online movie store is having a sale. You decide to open a charge account and buy four DVDs.



- Use composition of functions to find the sale price of \$85 worth of DVDs when the \$15 discount is applied before the 10% discount. [REDACTED]
- Use composition of functions to find the sale price of \$85 worth of DVDs when the 10% discount is applied before the \$15 discount. [REDACTED]
- Which order of discounts gives you a better deal? *Explain.* [REDACTED]

6.4

47. **MULTI-STEP PROBLEM** When calibrating a spring scale, you need to know how far the spring stretches for various weights. Hooke's law states that the length a spring stretches is proportional to the weight attached to it. A model for one scale is $\ell = 0.5w + 3$ where ℓ is the total length (in inches) of the stretched spring and w is the weight (in pounds) of the object.
- Find the inverse of the given model. [REDACTED]
 - If you place a weight on the scale and the spring stretches to a total length of 6.5 inches, how heavy is the weight? [REDACTED]

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6.4

48. ★ **EXTENDED RESPONSE** At the start of a dog sled race in Anchorage, Alaska, the temperature was 5°C . By the end of the race, the temperature was -10°C . The formula for converting temperatures from degrees Fahrenheit F to degrees Celsius C is $C = \frac{5}{9}(F - 32)$.
- Find the inverse of the given model. *Describe* what information you can obtain from the inverse.
 - Find the Fahrenheit temperatures at the start and end of the race. ██████████
 - Use a graphing calculator to graph the original function and its inverse. Find the temperature that is the same on both temperature scales. ██████████

6.6

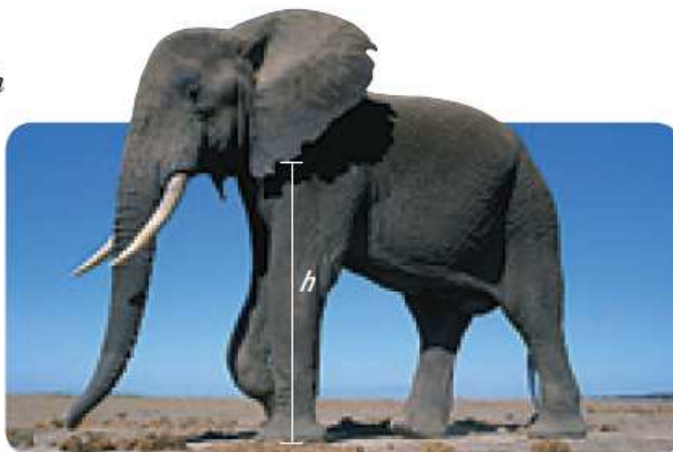
58. **CONSTRUCTION** The length l (in inches) of a standard nail can be modeled by $l = 54d^{3/2}$ where d is the diameter (in inches) of the nail. What is the diameter of a standard nail that is 3 inches long? ██████████

6.6

59. ★ **SHORT RESPONSE** Biologists have discovered that the shoulder height h (in centimeters) of a male African elephant can be modeled by

$$h = 62.5\sqrt[3]{t} + 75.8$$

where t is the age (in years) of the elephant. *Compare* the ages of two elephants, one with a shoulder height of 150 centimeters and the other with a shoulder height of 250 centimeters.



HW: WP Worksheet

Review assignment-due on test day

Warm Up

★ Evaluating. Combine Like Terms. Simplifying

$$\left(\frac{1}{49}\right)^{\frac{-3}{2}} = \left(\frac{49}{1}\right)^{\frac{3}{2}} \quad \text{343} \quad \ominus 625^{\frac{1}{4}} = -5 \quad \left(\frac{1}{361}\right)^{\frac{-1}{2}} = \text{N.P.}$$

$$\frac{4x^{\frac{2}{3}}}{6x^{\frac{1}{3}}} = \frac{2x^{\frac{1}{3}}}{3}$$

$$\left(\frac{2x^3}{1}\right)^{-3} = \frac{1}{8x^9}$$

$$\sqrt[3]{2} + 2\sqrt[3]{128}$$

$\sqrt[3]{2} + 8\sqrt[3]{\frac{64}{4} \cdot \sqrt[3]{2}}$
 $9\sqrt[3]{2}$

$$\sqrt[4]{32x^5y^{14}z^{20}}$$

$$\sqrt[4]{16} \cdot \sqrt[4]{2x^5y^{14}z^{20}}$$

$$2xy^3z^5 \sqrt[4]{2xy^2}$$

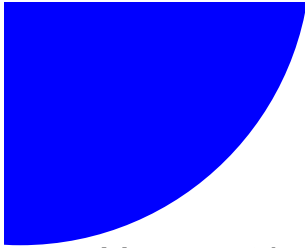
Check WP WS

Non calculator part:

- *Simplifying expressions.
- *Evaluating (exactly like Mad Minute quiz).
- *Adding and Subtracting radicals.
- *Solving Radical Functions
- *Graphing
- *Inverses

Calculator part:

- *Word Problems
 - Compositions
 - Inverses
 - Solving Radical Functions



QUIZ-QUIZ Trade

The Rules:

- You must be paired up at all times. If you find yourself without a partner, put your hand in the air.
- You are not allowed to return to someone you have already traded with.
- Please find at least 5 different partners that are not sitting at your pod.
- You can give your partner a clue to help them to get the answer right but not the answer itself.

★ Inverses

$$y = -2(x+1)^{5/2} + 3$$

$$x = -2(y+1)^{5/2} + 3$$

$$\frac{x-3}{-2} = -2(y+1)^{5/2}$$

$$\left(\frac{x-3}{-2}\right)^{2/5} = \left(\frac{-2}{-2}\right)^{2/5} (y+1)^{5/2 \cdot 2/5}$$

$$\left(\frac{x-3}{-2}\right)^{2/5} = y+1$$

$$y = \left(\frac{x-3}{-2}\right)^{2/5} - 1$$

★ Compositions

$$f(x) = 2x + 3$$

$$g(x) = \underline{x} - 1$$

$$h(x) = \frac{x-5}{2}$$

$$g(f(x)) =$$

$$\frac{(2x+3) - 1}{2}$$

$$h(f(x)) = \frac{(2x+3) - 5}{2}$$

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

★ Graphing

$\sqrt[3]{-8}$
 $\sqrt[3]{-1}$
 $\sqrt[3]{0}$
 $\sqrt[3]{1}$

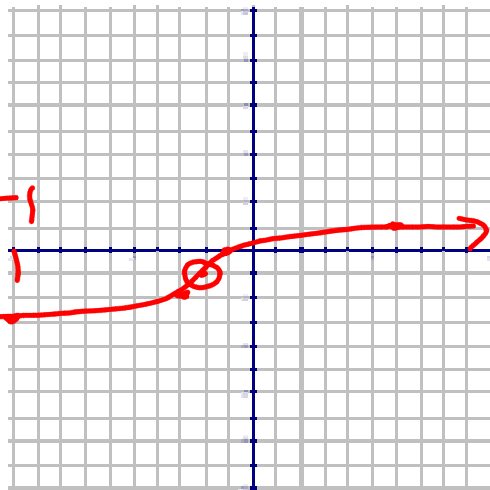
$$y = \sqrt[3]{x+2} - 1$$

$\sqrt[3]{-10+2} = -1$
 $\sqrt[3]{-8} = -1$
 $\sqrt[3]{-2} = -1$

D: $(-\infty, \infty)$

R: $(-\infty, \infty)$

x	y
-10	-1
-8	-1
-2	-1
0	0
2	1
6	2



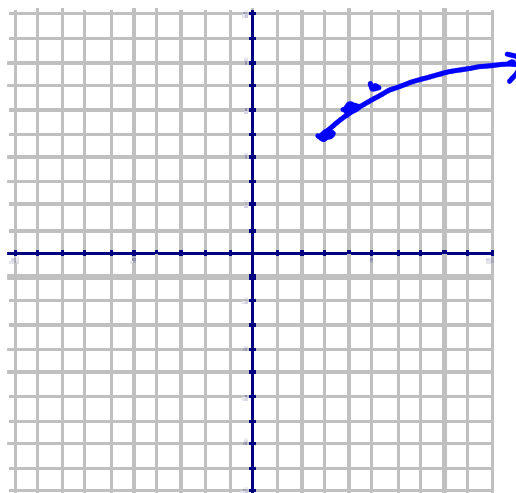
$\sqrt{25} = 5$
 $\sqrt{16} = 4$
 $\sqrt{9} = 3$
 $\sqrt{4} = 2$

$$y = \sqrt{x-3} + 5$$

D: $(3, \infty)$

R: $(3, \infty)$

x	y
3	5
4	6
7	7
12	8



Station Work

* 7 minutes per Station

Assignment : REVIEW WS

*All retakes must be done before Spring Break!!!

CH 6 Test Next Class