Topic 5 Review Activity Relay Race

Objective: The first team to get all questions complete and correct within the 11 rounds wins the game!

Teacher Instructions:

Print problems on colored paper. Two problems (left and right column) should go on each Relay Round, making 11 rounds. You can cut the paper horizontally to make each card for the Relay Round. You can also number each card, so they work in a specific order. Just do what works for you! Cardstock and/or laminated papers would be a great idea.

(Feel free to make any other activity using these cards. It was just a starting point for you.)

Divide students into teams. Assign a "runner" for each team. The runner will come get card #1. Each team should work out the solutions and come to a consensus before bringing them to the teacher to check. If the team gets everything right, they move on to round 2. If not, they must fix errors or ask any clarifying questions to get back on track. You can have students complete the work on their own paper or make copies for the students with space to work. Again, whatever is easiest for you!

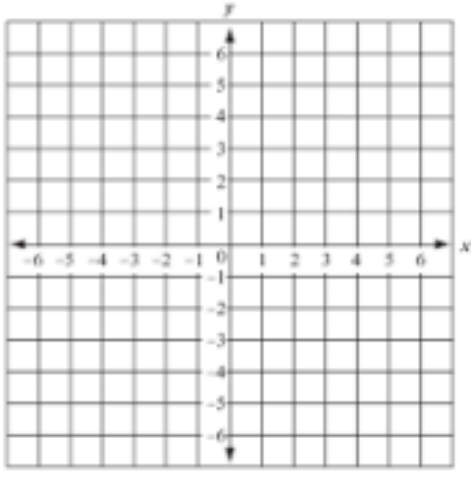
Find the value of the expression Round to the nearest tenth if necessary. a. $\sqrt[3]{7^6}$ b. $\sqrt[6]{1296}$	Find the value of the expression $\sqrt{3}(\sqrt{48}-2\sqrt{.75})$
Multiply: $(\sqrt{x}-5)(\sqrt{x}+5)$	Simplify each expression $\sqrt[4]{625x^4y^{12}}$
Simplify the expression a. $\frac{7}{\sqrt[3]{5}}$ b. $\frac{6}{1-\sqrt{5}}$	Determine if the following are real numbers a. $\sqrt{17}$ b. $\sqrt[3]{8}$ a. $\sqrt[3]{-8}$ d. $\sqrt[4]{-16}$ e. $\sqrt[4]{16}$

Describe the transformation of the graph of $f(x)=\sqrt{x}$

a. $g(x)=2-\sqrt{x}$

b. $g(x)=\sqrt{x-2}+4$

Sketch both graphs. Determine if the graphs are **increasing** or **decreasing**.



Let $f(x)=\sqrt{x}$ and $g(x)=10-x$

What is the domain of $f \circ g$ in interval notation?

Evaluate the expression when x=2

$$f(x)=\sqrt{x^2-6x+9}$$

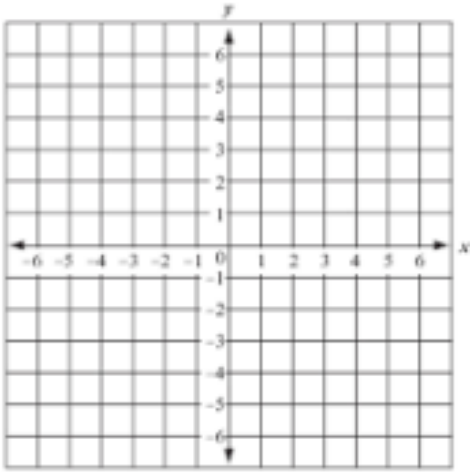
A cylindrical pipe is 15 ft long and has volume of 450 ft^3. Find its approximate diameter to the nearest hundredth of a foot.

Some values of f(x) are given in the table. Find the value of $f^{-1}(9)$

X	9	7	3
F(x)	-4	9	-2

Solve the equation. $(x+3)^{\frac{5}{2}} = (x-3)^5$	Solve the equation. $\sqrt{x} + \sqrt{x+7} = 3$
Solve the equation. $\sqrt{5+2x} = \sqrt{x+14} - 1$	The volume of a cube is 1.91 m^3. Find the length of its edge to the nearest tenth of a meter.
The function f has domain $x \geq -5$ and range $y \leq 4$ What are the domain and range of $f^{-1}(x)$?	If $b(x) = 9 - 3x$, what is an equation for $b^{-1}(x)$?

Graph the equation $y = \sqrt{x^2}$



Now solve $\sqrt{x^2} = x$

If $f(x) = 2x + 1$, determine whether each of the following statements are true or false:

a. $f^{-1}(3) = -2$ b. $f^{-1}(1) = 3$

c. $f(4) = 9$ d. $f \circ f^{-1}(8) = 8$

The volume of a sphere is $V(s) = \frac{4}{3}\pi s^3$ and the radius is increasing 5 cm per second. The function $s(t) = 5t$ gives the radius at time t seconds. Which of the following functions gives the volume at time t?

a. $V \bullet s$ b. $V + s$

d. $V \circ s$ d. $s \circ V$

Solutions

Find the value of the expression Round to the nearest tenth if necessary. a. $\sqrt[3]{7^6}$ 49 b. $\sqrt[6]{1296}$ 3.3	Find the value of the expression $\sqrt{3}(\sqrt{48}-2\sqrt{.75})$ 9
Multiply: $(\sqrt{x}-5)(\sqrt{x}+5)$ x-25	Simplify each expression $\sqrt[4]{625x^4y^{12}}$ $5xy^3$
Simplify the expression a. $\frac{7}{\sqrt[3]{5}}$ b. $\frac{6}{1-\sqrt{5}}$ $\frac{3+3\sqrt{5}}{-2}$ $\frac{7\sqrt[3]{25}}{5}$	Determine if the following are real numbers a. $\sqrt{17}$ Y b. $\sqrt[3]{8}$ Y c. $\sqrt[3]{-8}$ Y d. $\sqrt[4]{-16}$ N e. $\sqrt[4]{16}$ Y

Describe the transformation of the graph of $f(x)=\sqrt{x}$

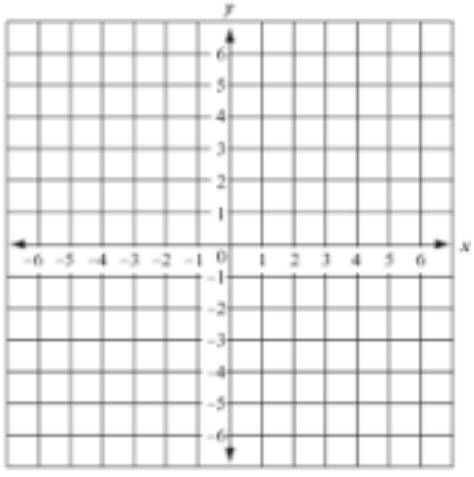
c. $g(x)=2-\sqrt{x}$

UP 2 XAXIS REFLECTION

d. $g(x)=\sqrt{x-2}+4$

RIGHT 2 UP 4

Sketch both graphs. Determine if the graphs are **increasing** or **decreasing**.



Let $f(x)=\sqrt{x}$ and $g(x)=10-x$

What is the domain of $f \circ g$ in interval notation?

$X \leq 10$

Evaluate the expression when x=2

$$f(x)=\sqrt{x^2-6x+9}$$

1

A cylindrical pipe is 15 ft long and has volume of 450 ft^3. Find its approximate diameter to the nearest hundredth of a foot.

6.18

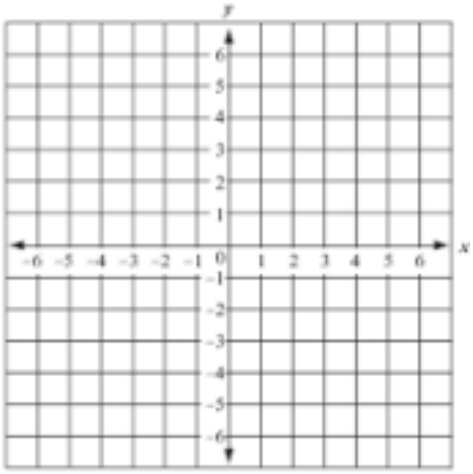
Some values of f(x) are given in the table. Find the value of $f^{-1}(9)$

X	9	7	3
F(x)	-4	9	-2

7

Solve the equation. $(x+3)^{\frac{5}{2}} = (x-3)^5$ 6	Solve the equation. $\sqrt{x} + \sqrt{x+7} = 3$ 1/9
Solve the equation. $\sqrt{5+2x} = \sqrt{x+14} - 1$ 2	The volume of a cube is 1.91 m^3. Find the length of its edge to the nearest tenth of a meter. 1.2
The function f has domain $x \geq -5$ and range $y \leq 4$ What are the domain and range of $f^{-1}(x)$? $X \leq 4 Y \geq -5$	If $b(x) = 9 - 3x$, what is an equation for $b^{-1}(x)$? $\frac{9 - X}{3}$

Graph the equation $y = \sqrt{x^2}$



Now solve $\sqrt{x^2} = x$

$X \geq 0$

If $f(x) = 2x + 1$, determine whether each of the following statements are true or false:

a. $f^{-1}(3) = -2$ F b. $f^{-1}(1) = 3$ F

c. $f(4) = 9$ T d. $f \circ f^{-1}(8) = 8$ T

The volume of a sphere is $V(s) = \frac{4}{3}\pi s^3$ and the radius is increasing 5 cm per second. The function $s(t) = 5t$ gives the radius at time t seconds. Which of the following functions gives the volume at time t?

a. $V \bullet s$ b. $V + s$

c. $V \circ s$ d. $s \circ V$