

REVIEW Cubic and Cube Root

Name: _____

Given: $f(x) = 3(3x - 6)^3 - 1$

$g(x) = \frac{1}{5}\sqrt[3]{4 - 2x}$

$h(x) = \sqrt[3]{4 + 2(x + 1)^3}$

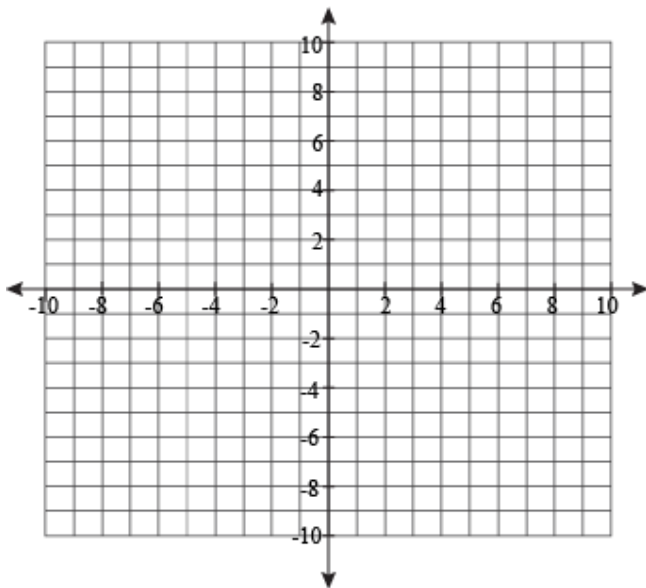
1) Evaluate $g(x) = -2$

2) Evaluate $h(2)$

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

Graph the following functions and identify their attributes.

4) $f(x) = \frac{1}{2}(x + 2)^3 - 1$



Vertex: _____

x-intercept: _____ y-intercept: _____

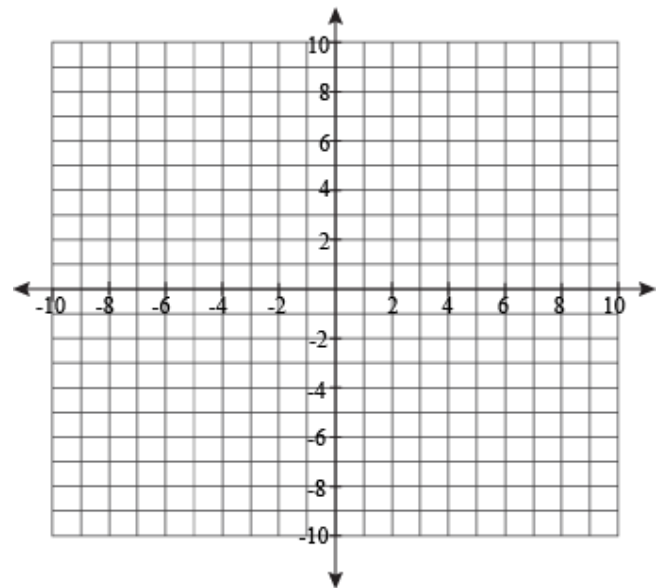
Increasing: _____ Decreasing: _____

Domain: _____ Range: _____

End behaviors: _____

Transformations: _____

5) $g(x) = \sqrt[3]{-2(x - 1)} + 2$



Vertex: _____

x-intercept: _____ y-intercept: _____

Increasing: _____ Decreasing: _____

Domain: _____ Range: _____

End behaviors: _____

Transformations: _____

Find the inverse of each function.

$$6) f(x) = 3(4 + 2x)^3 + 3$$

$$7) g(x) = 2\sqrt[3]{3 - 4x} - 1$$

Use composition to prove the following functions are inverses.

$$8) f(x) = \sqrt[3]{\frac{x+1}{2}} - 2 \text{ and } g(x) = 2(x+2)^3 - 1$$

Solve the following equations.

$$9) 5x^3 + 25 = 13$$

$$10) -2\sqrt[3]{4x + 3} - 12 = 8$$

$$11) \sqrt[3]{x + 23} = 3\sqrt[3]{2x - 4}$$

12) The price of a stock is growing according to the equation $P(t) = \frac{1}{24.6}(t + 2.5)^3 + 500$, where t is measured in weeks and $P(t)$ is the price of the stock.

a) Determine the value of the stock after 10 weeks.

b) In which week is the price of the stock valued at \$1000?

13) The number of searches in Google for an piece of artwork is modeled by the cube root equation

$S(m) = 1.93\sqrt[4.23]{\frac{1}{4.23}m - 1} + 3$, where $S(m)$ is the number of searches in hundreds of thousands and m is the number of months since the beginning of the year.

a) Determine how many searches were made on the first day of November.

b) In which month did the number of searches first exceed 400,000?