

1. Write the equation that represents a vertical shift up 3 and a horizontal shift left 4 of $f(x) = |x|$?

2. If $f(x) = \sqrt{x}$; $g(x) = 3x - 2$ and $h(x) = x^2 - 4$, find the following, written in simplified form.

a. $f(g(x))$

c. $g(f(x))$

b. $h(h(x))$

d. $f(g(h(x)))$

3. Determine $f(x)$ and $g(x)$ if $H(x) = f(g(x))$. $H(x) = \frac{4}{\sqrt[3]{x^3+3}}$

4. Given the values in the following table:

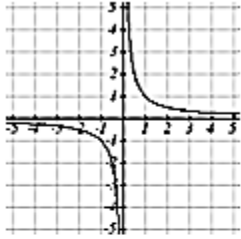
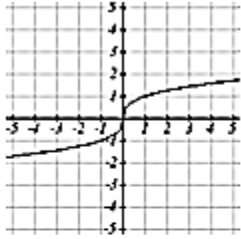
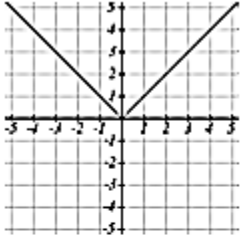
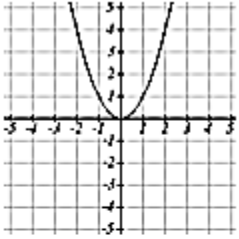
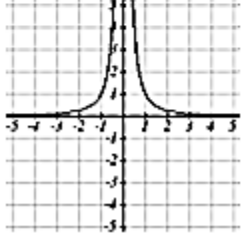
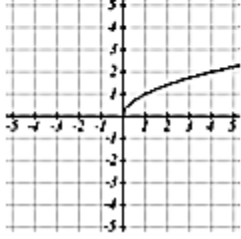
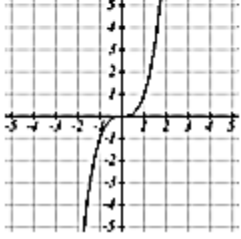
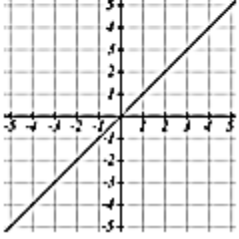
x	1	2	3	4	5
f(x)	3	-3	4	8	-1
g(x)	2	5	1	2	6

a) $f(g(1))$

b) $g(f(3))$

c) $f(f(3))$

5. Match the name & equation to the graph.

a. $y = x$	i. 	ii. 	iii. 	iv. 
b. $y = x^3$				
c. $y = \sqrt[3]{x}$				
d. $y = \frac{1}{x}$				
e. $y = x^2$	v. 	vi. 	vii. 	viii. 
f. $y = \sqrt{x}$				
g. $y = x $				
h. $y = \frac{1}{x^2}$				

6. Match the description of the transformation with the equation.

	Description	Function
_____	1. Shift to the left 1 unit	a. $y = f(-x)$
_____	2. Shift to the right 1 unit	b. $y = 2f(x)$
_____	3. Shift up 1 unit	c. $y = f(x + 1)$
_____	4. Shift down 1 unit	d. $y = \frac{1}{2}f(x)$
_____	5. Makes the graph wider	e. $y = f(x) + 1$
_____	6. Makes the graph more narrow	f. $y = f(x - 1)$
_____	7. Reflect over the x-axis	g. $y = f(x) - 1$
_____	8. Reflect over the y-axis	h. $y = -f(x)$

7. Find the domain of each function.

a. $f(x) = -x^3 + 6x$

b. $f(x) = \sqrt{9 - 2x}$

c. $g(x) = \frac{x}{x^2-16}$

d. $h(x) = \ln x$

8. Given $f(x) = \begin{cases} x + 2, & x \geq 2 \\ 2x, & x < 2 \end{cases}$,

a. Evaluate $f\left(-\frac{3}{4}\right)$, $f(2)$, and $f(10)$.

b. Graph $f(x)$.

9. Solve each equation if $0 \leq x \leq 2\pi$.

a. $\cos^2 x + \cos x = \sin^2 x$

c. $\sin x + \sqrt{2} = -\sin x$

b. $2 \sin^2 x + 5 \sin x = 3$

Solve each equation:

10. $18^{2x} = 26$

11. $\log 5x = \log(2x + 9)$

12. $-6 \log_3(x - 3) = -24$

13. $\log_6(x + 1) - \log_6 x = \log_6 29$

14. $\log_5 6 + \log_5 2x^2 = \log_5 48$