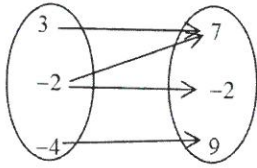
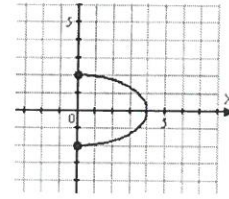


1. Determine if the following are functions. State the domain and range for each.

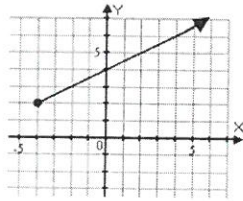
a.

Function (Y or N): NDomain: {3, -2, -4}Range: {7, -2, 9}

b.

Function (Y or N): NDomain: [0, 4]Range: [-2, 2]

c.

Function (Y or N): YDomain: [-4, ∞)Range: [2, ∞)

d.

{(6, -3), (7, 4), (-7, -2), (0, -2)}

Function (Y or N): YDomain: {6, 7, -7, 0}Range: {-3, 4, -2}

2. Given the following functions, find each value.

$$f(x) = x^2 + 1$$

$$g(x) = 6 - 3x$$

$$h(x) = x - 1$$

$$j(x) = -2x^3$$

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

a. $j(f(-3))$

$$-2000$$

b. $f(h(x))$

$$x^2 - 2x + 2$$

c. $f^{-1}(x) = \sqrt{x-1}$

d. Use compositions to prove that $g(x)$ and $k(x)$ are inverses.

$$g(k(x)) = x$$

$$k(g(x)) = x$$

3. State the transformations that occur for each of the following functions. Then sketch a graph.

a. $y = 4(x - 2)^2 - 5$

b. $y = \sqrt{x + 5} + 1$

c. $y = -\frac{3}{5}|x + 3| + 8$

Transformation(s):

VD: 4 (narrow)
 HT: 2 (right)
 VT: -5 (down)

Transformation(s):

HT: -5 (left)
 VT: 1 (up)

Transformation(s):

Reflection
 VD: $\frac{3}{5}$ (wide)
 HT: -3 (left)
 VT: 8 (up)

4. Solve. $\frac{-x^2+3}{x^2-3x-28} + \frac{2x}{x+4} = \frac{-10}{x^2-3x-28}$

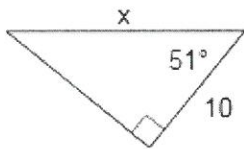
$x=1, x=13$

5. Solve. $\log_2(x + 4) + \log_2(x - 2) = 4$

$x \neq 6 \quad x=4$

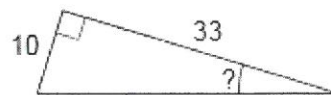
6. Solve for the missing side or angle. Round side lengths to the tenths place and angles to the whole degree.

a.



$x=15.89$

b.



$?^\circ = 17^\circ$

7. Find the exact value.

a. $\sin\left(\frac{9\pi}{4}\right)$
 $\frac{1}{\sqrt{2}}$

b. $\cos\left(-\frac{17\pi}{6}\right)$
 $-\frac{\sqrt{3}}{2}$

c. $\cot(5\pi)$
 undefined

d. $\csc\left(\frac{11\pi}{3}\right)$
 $-\frac{2}{\sqrt{3}}$