

**FUNCTIONS**

Write your answers in the spaces provided.

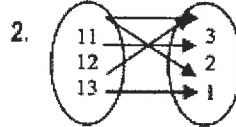
Identify the domain and range of the given relation. Then tell whether the relation is a function. If the relation is a function, tell whether it is a one-to-one function.

1.  $(1, 1), (2, 2), (3, 3), (4, 4)$

Domain:  $\{1, 2, 3, 4\}$

Range:  $\{1, 2, 3, 4\}$

Function: Yes or No



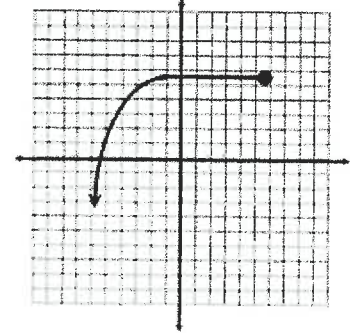
Domain:  $\{11, 12, 13\}$

Range:  $\{1, 2, 3\}$

Function: Yes or No

11 has  
two outputs

3.



Domain:  $(-\infty, 5.5]$

Range:  $(-\infty, 5.5]$

Function: Yes or No

**Evaluating Functions**

Show work when necessary. Then, write your answers in the space provided.

Given the functions below find the value of each of the following.

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

$h(x) = -3x + 9$

4.  $f(-1) = \underline{-1}$

5.  $h(3) = \underline{0}$

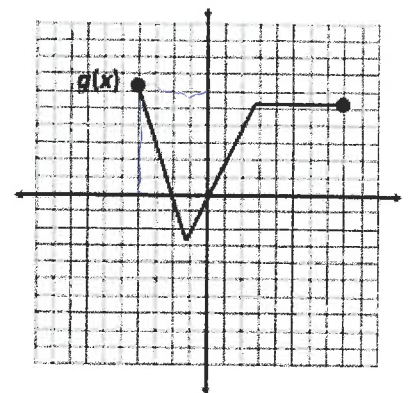
6.  $f(3) = \underline{31}$

7.  $x$  when  $g(x) = 6$

$x = -4$

8.  $g(3) = \underline{5.1}$

9.  $g(2) = \underline{4}$



$$\begin{aligned} f(-1) &= 2(-1)^3 - 3(-1)^2 + 4 \\ &= 2(-1) - 3 + 4 \\ &= -2 - 3 + 4 \\ &= -1 \end{aligned}$$

$$\begin{aligned} f(3) &= 2(3)^3 - 3(3)^2 + 4 \\ &= 54 - 27 + 4 \\ &= 27 + 4 \\ &= 31 \end{aligned}$$

**SOLVING EQUATIONS**

Show your work and box your answers in the space below.

1.  $6x + 7 = 8x - 13$

$$-6x \quad -6x$$

Subtraction PoE

$$\begin{array}{r} 7 = 2x - 13 \\ +13 \quad +13 \end{array}$$

Addition PoE

$$\frac{20}{2} = \frac{2x}{2}$$

Division PoE

$$10 = x$$

2.  $2(x - 3) + 5 = 3(x - 1)$

$$2x - 6 + 5 = 3x - 3$$

Distribution Prop

$$-2x \quad -2x$$

Subtraction PoE

$$-6 + 5 = x - 3$$

$$+3 \quad +3$$

Addition PoE

$$2 = x$$

**Solving Literal Equations:**

1. Solve for x:  $y = 3x - 7$

$$x = \frac{y+7}{3}$$

2. Solve for R:  $I = PRT$

$$R = \frac{I}{PT}$$

3. Solve for z:  $x = \frac{yz}{4}$

$$z = \frac{4x}{y}$$

4. Solve for y:  $10x - 4y = 20$

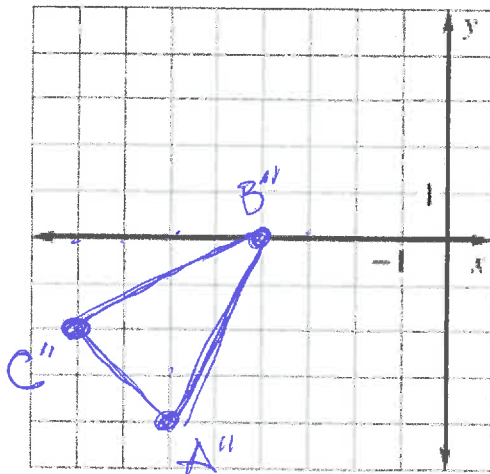
$$y = \frac{20 - 10x}{-4}$$

**TRANSFORMATIONS**

Draw and label the original triangle  $ABC$  and then draw and label the image of triangle  $ABC$ .

The vertices of  $\triangle ABC$  are  $A(3,1)$ ,  $B(1,5)$ , and  $C(5,3)$ . Graph the image of  $\triangle ABC$  after a composition of the transformations in the order they are listed.

- 10) Translation:  $(x, y) \rightarrow (x + 3, y - 5)$   
 Reflection: in the  $y$ -axis



$$A(3, 1) \rightarrow A'(6, -4)$$

Translation  $B(1, 5) \rightarrow B'(4, 0)$

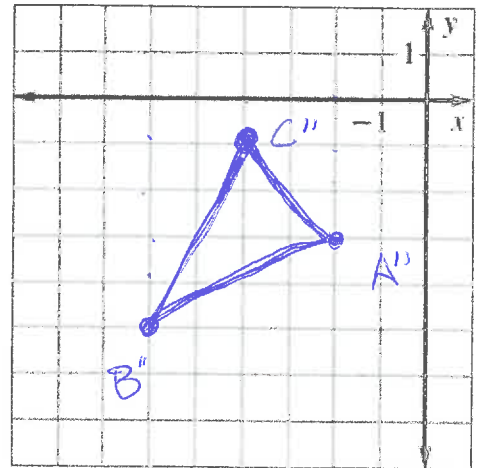
$$C(5, 3) \rightarrow C'(8, -2)$$

Reflection  $A'(6, -4) \rightarrow A''(-6, -4)$

$$B'(4, 0) \rightarrow B''(-4, 0)$$

$$C'(8, -2) \rightarrow C''(-8, -2)$$

- 11) Translation:  $(x, y) \rightarrow (x - 6, y + 1)$   
 Rotation:  $90^\circ$  about the origin



$$A(3, 1) \rightarrow A'(-3, 2)$$

Translation  $B(1, 5) \rightarrow B'(-5, 6)$

$$C(5, 3) \rightarrow C'(-1, 4)$$

Rotation  $A'(-3, 2) \rightarrow A''(-2, -3)$

$$B'(-5, 6) \rightarrow B''(-6, -5)$$

$$C'(-1, 4) \rightarrow C''(-4, -1)$$