

Name \_\_\_\_\_

Date \_\_\_\_\_

1. If you are given an explicit notation, convert it to recursive. If you are given a recursive notation, convert it to explicit. **Show your work.**

a)  $a_n = a_{n-1} + 6; a_1 = -8$

$a_n = 6n - 14$

b)  $a_n = 3n - 12$

$a_1 = -9; a_n = a_{n-1} + 3$

c. Write an explicit and recursive rule for the sequence. b. Then find  $a_{50}$ .  
1, 5, 9, 13, ...

$a_1 = 1$   
 $a_n = a_{n-1} + 4$

$a_n = 4n - 3$   
 $a_{50} = 197$

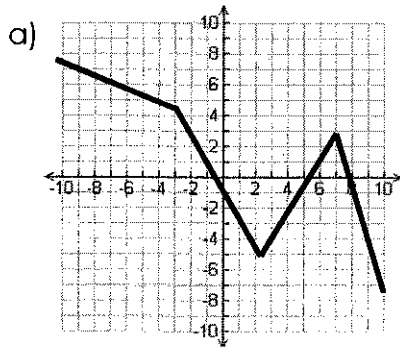
d. Write an explicit recursive rule for the sequence.  
Then find  $a_{20}$ .

8, 3, -2, -7, ...

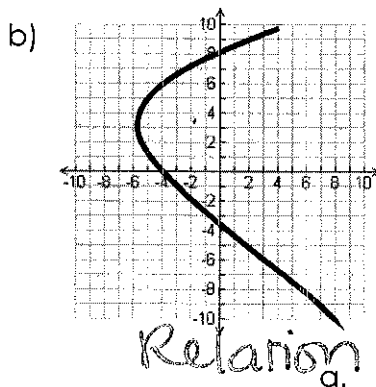
$a_1 = 8$   
 $a_n = a_{n-1} - 5$

$a_n = -5n + 13$   
 $a_{20} = -87$

2. Determine whether each of the following is a function or a relation.



Function



Relation

c)  $\{(3, 4), (7, 8), (18, -7), (-4, 6), (6, -7), (-9, 3)\}$

Function

d)  $\{(5, -2), (5, -5), (5, 8), (5, 7), (5, 9), (5, -13)\}$

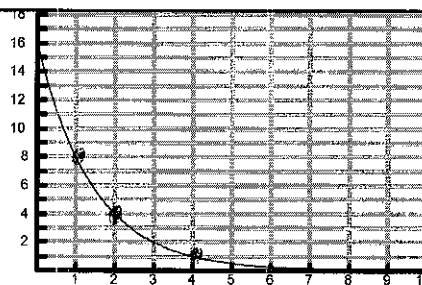
Relation

**Evaluation Functions:**

4.  $f(2) = 4$

5.  $f(4) = 1$

6. If  $f(x) = 8$ , then  $x = 1$



\*\*Make sure you go back and review ALL material from including notes, homework and skills checks\*\*

3. Find the explicit formula and the 87<sup>th</sup> term for the following sequence: 14.9, 8.6, 2.3, ...

$$a_n = -6.3n + 21.2$$

$$a_{87} = -526.9$$

4. Dale has opened 142 new accounts as of week one. Starting with week two, he opens 12 new accounts each week. Write an explicit formula and a recursive formula for the situation, and find how many accounts he opened in week 52.

$$R \quad a_1 = 142$$

$$a_n = a_{n-1} + 12$$

$$a_n = 12n + 130$$

754 cans

5. Use the function definitions shown below to find each of the requested values.

$$f(x) = -5x^2 + 8x - 3$$

$$g(x) = 14x + 7$$

$$h(x) = -5x^3$$

$$h(x) \cdot f(x)$$

$$g(2x - 5)$$

$$f(4) + g(3) + h(2)$$

$$4f(x) - 2g(x)$$

$$2.5x^5 - 40x^4 + 15x^3$$

$$28x - 63$$

$$42$$

$$-20x^2 + 4x - 26$$

6. Write the equation  $y = \frac{3}{4}x + 3$

Domain  $\mathbb{R}$

Range  $\mathbb{R}$

x-intercept  $(-4, 0)$

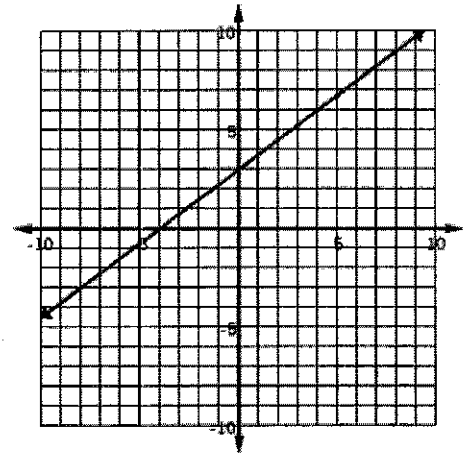
y-intercept  $f(0) = 3$  (in function notation)  $(0, 3)$

Interval of Increase  $(-\infty, \infty)$  Decrease no

Find  $f(4) = 6$

Rate of change over  $[-8, 4]$   $\frac{3}{4}$

End behavior  $x \rightarrow \infty \quad f(x) \rightarrow \infty$   
 $x \rightarrow -\infty \quad f(x) \rightarrow -\infty$



What is the Rate of change?

Find the rate of change.

19.  $(6, -3)(8, -2)$

$$\frac{-2 - (-3)}{8 - 6} = \frac{1}{2}$$

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

when  $x_1 = -2$  and  $x_2 = -3$ .

$$-3(-2)^2 + 4 = -8$$

$$-3(-3)^2 + 4 = -23$$

Identify the property of equality that justifies each missing step or equation in each of the following tables.

1.

Equation	Steps
1. $3x + 12 = 8x - 18$	Given
2. $12 = 5x - 18$	Addition / Sub. Prop <sup>of Eq.</sup>
3. $30 = 5x$	Addition Property of Equality
4. $6 = x$	Multiplication / Div. Prop of Eq.

2.

Equation	Steps
1. $3k + 5 = 17$	Given
2. $3k = 12$	Subtraction / Add. Prop <sup>of Eq.</sup>
3. $k = 4$	Division Property of Equality

3.

Equation	Steps
1. $-6a - 5 = -95$	Given
2. $-6a = -90$	Addition Prop. of Eq.
3. $a = 15$	Division Prop of Eq.

4.

Equation	Steps
1. $3(5x + 1) = 13x + 5$	Given
2. $15x + 3 = 13x + 5$	Distributive Prop.
3. $2x + 3 = 5$	Subtraction Prop
4. $2x = 2$	Subtraction Prop
5. $x = 1$	Division Prop.

5.

Equation	Steps
1. $7y - 84 = 2y + 61$	Given
2. $5y - 84 = 61$	Subtraction
3. $5y = 145$	Addition
4. $y = 29$	Division

} Prop. of Equality