

Objective 1: Solving Equations	Met	Not Met
<p>1. What is the solution to <math>3 - (x + 1) = 5x + 6 - 7x</math>?</p> <p>A. <math>x = -3</math>                      B. <math>x = 1</math>  C. <math>x = 2</math>                        D. <math>x = 4</math></p>	<p>2. What value of <math>x</math> satisfies the equation <math>\frac{x+2}{2} = x-4</math>?</p> <p>A. -4                              B. 2  C. 6                                D. 10</p>	
Objective 2: Solving Inequalities	Met	Not Met
<p>3. What is the solution to the inequality <math>-2(1 - 4x) + 5 \geq 1 - (x + 9)</math>?</p> <p>A. <math>x \geq \frac{17}{9}</math>                      B. <math>x \geq \frac{4}{9}</math>  C. <math>x \geq \frac{-11}{9}</math>                        D. <math>x \leq \frac{-10}{7}</math></p>	<p>4. What is the solution to the inequality <math>\frac{-5x+3}{4} &gt; -8</math>?</p> <p>A. <math>x &gt; 7</math>                        B. <math>x &lt; 7</math>  C. <math>x &gt; 4</math>                        D. <math>x &lt; 4</math></p>	
Objective 3: Real World Applications of Solving Equations & Inequalities	Met	Not Met
<p>5. Your total cost for hiring an interior designer is \$200 for an initial consultation plus \$45 for each hour the designer spends drawing plans.</p> <p>Write a function rule to represent the situation.</p> <p>A. <math>200 = 45h + C</math>                      B. <math>C = 200h + 45h</math>  C. <math>C = 200 + 45h</math>                        D. <math>45 = C + 200</math></p>	<p>6. A company charges \$13 plus \$3 per hour to rent a boat. Abigail and Monique want to rent a boat but do not want to spend more than \$20 each. What is the maximum number of hours the girls can rent a boat?</p> <p>A. 9 hours                        B. 6 hours  C. 5 hours                        D. 2 hours</p>	
Objective 4: Literal Equations	Met	Not Met
<p>7. The equation <math>p = \frac{F}{A}</math> gives, <math>P</math>, pressure, on a surface when a force, <math>F</math>, is applied and <math>A</math> is the area of the surface on which the force is applied.</p> <p>Solve the equation for <math>F</math>.</p> <p>A. <math>F = A \times P</math>                      B. <math>F = \frac{A}{P}</math>  C. <math>F = \frac{P}{A}</math>                                D. <math>F = A + P</math></p>	<p>8. Which formula represents the equation <math>r = \frac{1}{2}x + y</math>, when solved for <math>y</math>?</p> <p>A. <math>y = \frac{2r}{x}</math>                              B. <math>y = \frac{r}{2x}</math>  C. <math>y = r + \frac{1}{2}x</math>                        D. <math>y = r - \frac{1}{2}x</math></p>	

# Objective 5: Sequences

9. A sequence is shown below:

24, 12, 6, ...

- A.  $\frac{1}{2}$
- B.  $\frac{3}{16}$
- C.  $\frac{2}{8}$
- D.  $\frac{1}{2}$

What is the 7th term of the sequence?

Met

Not Met

10. The sequence below shows the number of cells in a sample at the end of the four hours.

128, 64, 32, 16

A. NEXT = NOW - 64

B. NEXT = 2 • NOW

C. NEXT =  $\frac{1}{2}$  • NOW

D. NEXT = NOW - 16

Which recursive formula models the sequence?

Met

Not Met

# Objective 6: Introduction to Functions

11. Which statement best describes whether the relation below is a function and correctly explains why or why not?

$(0, 0), (5, 10), (6, 12),$  and  $(10, 20)$

- A. No, because one of the ordered pairs is the origin.
- B. Yes, because one of the ordered pairs is the origin.
- C. No, because each x-value is paired with exactly one y-value.
- D. Yes, because each x-value is paired with exactly one y-value.

12. For the function  $f(x) = 4x - 2$

what is the range  $f(x)$  of for the domain  $\{-2, 0, 3\}$ ?

- A.  $R = \{-2, 0, 3\}$
- B.  $R = \{-4, -2, 1\}$
- C.  $R = \{-8, 0, 12\}$
- D.  $R = \{-10, -2, 10\}$

13. If  $f(x) = x - 5$  and  $f(x) = 11$ , what is the value of  $x$ ?

- A. 16
- B. 7
- C. 8
- D. 15

Met

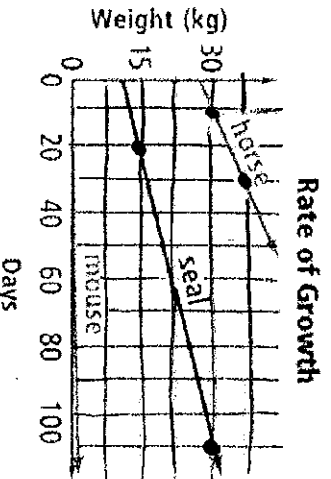
Not Met

# Objective 7: Rates, Rate of Change & Slope

14.

The graph shows the average growth rates for three different animals.

What is the rate of change for the seal?



- A. 0.15 kg per day
- B. 5.33 kg per day
- C. 0.19 kg per day
- D. 6.7 kg per day

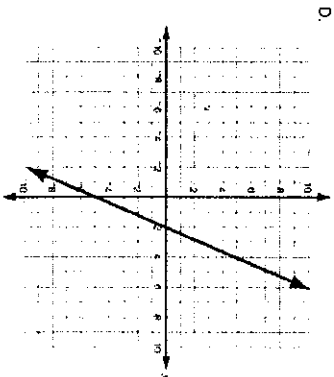
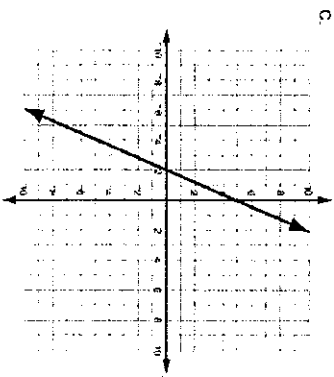
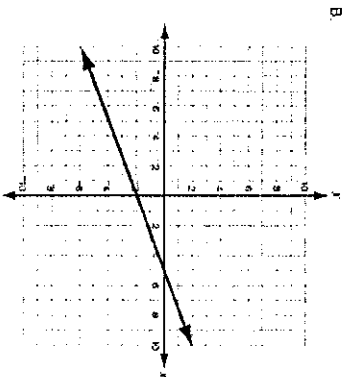
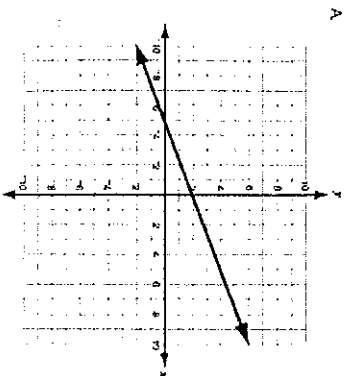
15. A volleyball camp charges \$150 per camper for 10 campers. When a team brings 15 campers, the rate is reduced to \$125 per camper. What is the rate of change in cost per camper?

- A. \$2.50
- B. \$5.00
- C. \$8.34
- D. \$10.00

16. The graph of a linear function passes through the points (2,3) and (5,9). Which is an equation of the function?

- A.  $f(x) = 2x + 1$   
 B.  $f(x) = 2x - 1$   
 C.  $f(x) = 3x - 1$   
 D.  $f(x) = 3x + 1$

17. Which graph represents a function with an x-intercept at  $-2$  and a y-intercept at  $5$ ?



## Objective 9: Parallel &amp; Perpendicular Lines

## Met

## Not Met

18. Which is an equation of a line perpendicular to the graph of  $6x + y = 12$ ?

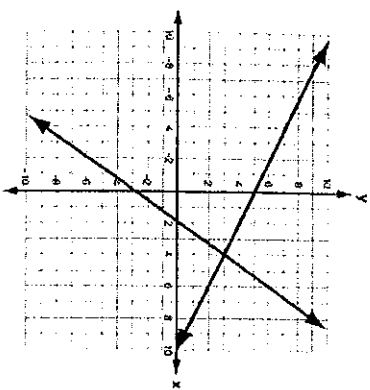
- A.  $6x + y = 2$   
 B.  $6x - y = 12$   
 C.  $x + 6y = 12$   
 D.  $x - 6y = 2$

19. What is the equation of a line passing through the point  $(-4, 8)$  that is parallel to the line  $y = 2x + 6$ ?

- A.  $y = -\frac{1}{2}x$   
 B.  $y = \frac{1}{2}x + 10$   
 C.  $y = 2x + 16$   
 D.  $y = 2x - 20$

**Objective 10: Solving Systems by Graphing**

20. The graph below represents a system of linear equations.



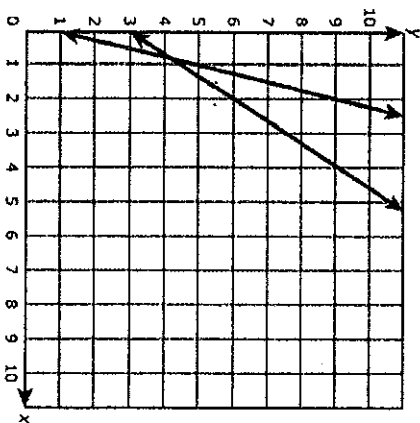
Based on the graph, which is the apparent solution to the system of equations?

- A. (0, 5)
- B. (2, 0)
- C. (3, 4)
- D. (4, 3)

**Met**

**Not Met**

21. Tom graphed a system of equations on a sheet of 1-quadrant grid paper as shown.



Which system of equations could be shown on this grid paper?

- A.  $\begin{cases} y = 3 + \frac{3}{2}x \\ y = 1 + 4x \end{cases}$
- B.  $\begin{cases} y = \frac{3}{2} + 3x \\ y = 4 + x \end{cases}$
- C.  $\begin{cases} y = 3 + \frac{2}{3}x \\ y = 1 + \frac{1}{4}x \end{cases}$
- D.  $\begin{cases} y = \frac{2}{3} + 3x \\ y = \frac{1}{4} + x \end{cases}$

**Objective 11: Solving Systems by Substitution**

22. A system of equations is shown below.

$$\begin{aligned} 3x - y &= 14 \\ x &= 2y - 2 \end{aligned}$$

- What is the solution to the system?
- A. (4, -2)
  - B. (3, -5)
  - C. (6, 4)
  - D. (4, 3)

**Met**

**Not Met**

23. A system of equations is shown below.

$$\begin{aligned} y &= 2x + 1 \\ 3x + 2y &= -5 \end{aligned}$$

- What is the solution to the system?
- A. (-1, -1)
  - B. (0, 1)
  - C. (1, -4)
  - D. (2, 5)

**Objective 12: Solving Systems by Elimination**

24. A system of equations is shown below.

$$\begin{aligned} 2x + 3y &= 8 \\ x + 2y &= 8 \end{aligned}$$

- What is the solution to the system?
- A. (-8, 8)
  - B. (-2, -3)
  - C. (2, 3)
  - D. (8, -8)

**Met**

**Not Met**

25. In order to solve the system of equations  $\begin{cases} x - 3y = 2 \\ 2x + y = 11 \end{cases}$  using the elimination method, which of the following steps could be used?

- A. Multiply the first equation by 2 and then add that result to the second equation.
- B. Multiply the first equation by 3 and then add that result to the second equation.
- C. Multiply the second equation by 2 and then add that result to the first equation.
- D. Multiply the second equation by 3 and then add that result to the first equation.

**Objective 13: Linear Inequalities**

**Met**

**Not Met**

26. Which point is a part of the solution set of the system of inequalities below?

$$y < 2x + 3$$

$$y < -2x + 3$$

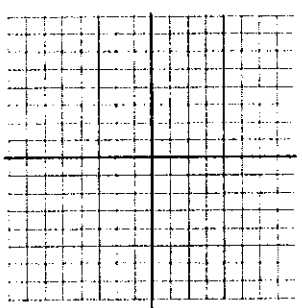
- A. (4, 2)
- B. (0, 1)
- C. (6, -2)
- D. (5, 0)

27. Which of the points below would be a solution for the system of inequalities?

$$2x + 5y \geq -7$$

$$y < \frac{2}{3}x + 5$$

- A. (-3, -7)
- B. (-8, 1)
- C. (5, 3)
- D. (8, -10)



**Objective 14: Solving Systems by Substitution**

**Met**

**Not Met**

28. The sum of two positive numbers is 45. The difference between the numbers is 9. What is the value of the smaller number?

- A. 9
- B. 18
- C. 27
- D. 36

29. Michael has a jar of dimes and nickels. There are 152 dimes and nickels in the jar that total \$11. If  $d$  represents the number of dimes and  $n$  represents the number of nickels, which system of equations below represents the situation?

- A.  $\begin{cases} d+n=11 \\ 0.05d+0.10n=152 \end{cases}$
- B.  $\begin{cases} d+n=11 \\ 0.10d+0.05n=152 \end{cases}$
- C.  $\begin{cases} d+n=152 \\ 0.05d+0.10n=11 \end{cases}$
- D.  $\begin{cases} d+n=152 \\ 0.10d+0.05n=11 \end{cases}$

30. A farmer plans to create a rectangular garden. The garden can be no more than 30ft wide. The perimeter can be no more than 180ft. Write a system of inequalities to model this situation.

- A.  $w \geq 30$   
 $2L + 2W \leq 180$
- B.  $w \leq 30$   
 $2L + 2W \leq 180$
- C.  $w \leq 30$   
 $30w \leq 180$
- D.  $w \leq 180$   
 $2L + 2W \leq 30$