1 What is the solution to the following equation?

$$4x - 1 = 2x + 5$$

F $x = 1$

G $x = 2$

H $x = 3$

J $x = 4$

2 Which value of m satisfies the equation shown below?

$$5(m - 5) = 3(m + 1)$$

3
$$x^2 - 4 = 0$$

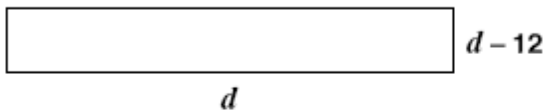Which is the solution set for the equation above?

F $\{^-4, 1\}$

G $\{^-2, 2\}$

H $\{^-1, 4\}$

J $\{0, 4\}$

4
$$\begin{cases} 3x + y = 11 \\ y = x + 3 \end{cases}$$

Which is the solution to the system of equations shown?

F $(4, 7)$

G $(2, 17)$
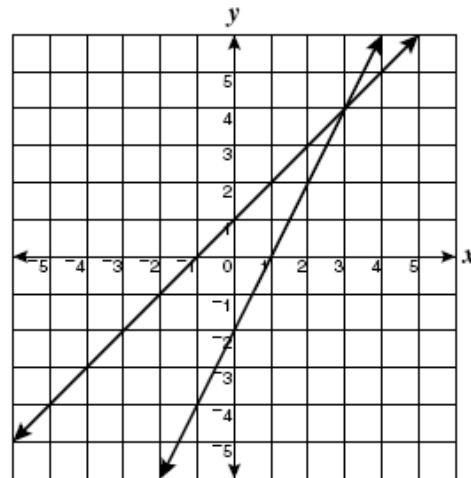
H $(2, 5)$

J $\left(\dfrac{1}{2}, 3\dfrac{1}{2}\right)$

5 The dimensions of a rectangle are shown in the drawing below.

$d - 12$

d

If the area is 28 square units, what is the value of d?

A 2 units

B 7 units

C 12 units

D 14 units

6

Which is most likely the solution to the system of equations shown in the graph?

F $(4, 3)$

G $(^-2, 0)$

H $(3, 4)$

J $(1, 0)$

---

7 A weather balloon in the shape of a sphere has a surface area of 160 square meters. If the formula for the surface area of a sphere is $S.A. = 4\pi r^2$, to the nearest tenth of a meter, what is the radius of the balloon?

A   2.0 m

B   3.6 m

C   11.2 m

D   12.7 m

8 What is the solution to $12 - \frac{1}{9}d = 17$?

F $d = -243$

G $d = -45$

H $d = -3$

J $d = \frac{-5}{9}$

---

9 What is the solution to

$$2 - 4a = 16?$$

10 If $\frac{1}{4}x + 1 > \frac{15}{2}$, then —

A $x > 26$

B $x > 29$

C $x > \frac{13}{2}$

D $x > 28$

---

11 Use the given numbers to create an ordered pair representing a solution to $y < x - 4$.

Directions: You may use a number twice. Be sure to write your answer in the space provided.

ANSWER: (_____ , _____)

| -6 | -2 | -1 | 0 | 4 |

Solve the system of equations

$$\begin{cases} 6x - 4y = 4 \\ 4y - 6x = 2 \end{cases}$$

12. **What is the solution to $3(x - 5) \geq 12$?**
 	
   F $x \leq 1$
 	
   G $x \geq {}^-1$
 	
   H $x \geq \dfrac{17}{3}$
 	
   J $x \geq 9$
	13 **What is the solution to $2x + 3 \geq x - 5$?**
	Graph the solution on a number line.

14   **What is the solution to $8 - 2x \geq {}^-4$?**
 	
   A $x \geq 6$
   B $x \geq 2$
   C $x \leq 2$
   D $x \leq 6$
	15 **What is the solution to**
	
	   $4(2x - 3) = 2(3x + 1)$?
	
	   F ${}^-5$
	   G 1
	   H 7
	   J 10

solve the system of equations below
 	
16   $\begin{cases} 2x + y = 4 \\ 3x - y = {}^-14 \end{cases}$
	17 **What is the solution to this system of equations?**
	
	   $\begin{cases} 5x + 4y = 22 \\ 3x + 4y = 10 \end{cases}$
	
	   F $x = 2, y = 2$
	   G $x = 2, y = 3$
	   H $x = 2, y = 1$
	   J $x = 6, y = {}^-2$

18   $\begin{cases} x + y = 4 \\ x - y = 2 \end{cases}$
 	
   Which is the solution to the system of equations shown?
 	
   F $x = 1, y = 3$
   G $x = 2, y = 2$
   H $x = 3, y = 1$
   J $x = 4, y = 0$
	19. What values of x make the following inequality true?
	$$-3(x+1) \leq 15$$
	
	   A $x \geq 6$
	   B $x \leq 6$
	   C $x \geq {}^-6$
	   D $x \leq {}^-6$

19.5 Solve and graph on a number line:

    $2.2(5 - y) \geq 24.2$

20 Which measure is closest to the length of a side of a square that has an area of 221 square feet?
 	
  F 11.0 ft
  G 14.9 ft
  H 16.4 ft
  J   55.2 ft
	21 The velocity of an object in a liquid can be described by the equation $v = 20 - t - t^2$ where v is the velocity in meters per second and t is time in seconds. At what time will $v = 0$?
	
	  F 4 sec
	  G 5 sec
	  H 6 sec
	  J 7 sec

22 What are the solutions to the equation below?
 	
$$\frac{3}{4}x^2 - 12 = 0$$
 	
  A $x = {}^-4$ or $x = 4$
  B $x = {}^-12$ or $x = 9$
  C $x = {}^-3$ or $x = 3$
  D $x = 3$ or $x = 9$
	23 $2x^2 - 3x + 1 = 0$
	
	Which is the solution set for the equation above?
	
	  A $\{{}^-2, {}^-1\}$
	  B $\left\{{}^-1, \frac{{}^-1}{2}\right\}$
	  C $\left\{\frac{1}{2}, 1\right\}$
	  D $\{1, 2\}$

24. What is the solution set for the equation below?
 	
$(x + 5)(x + 3) = 0$
 	
  A $\left\{0, 8\right\}$
  B $\left\{3, 5\right\}$
  C $\left\{{}^-2, 8\right\}$
  D $\left\{{}^-5, {}^-3\right\}$
	25 Which is the solution set for $x^2 - 5x - 14 = 0$?
	
	  F $\{{}^-7, {}^-2\}$
	  G $\{{}^-7, 2\}$
	  H $\{{}^-2, 7\}$
	  J $\{2, 7\}$

26. Donny decides to manufacture and sell his band's CD. It requires an investment of $3349 for computer hardware and it will cost $3.65 for materials for each disk. If each CD sells for $13.50, how many must he sell to break even?

    A) 196 CDs   **B)** 340 CDs   **C)** 195 CDs   **D)** 339 CDs

27. Solve $y = \dfrac{5}{8}b + 10$ **for b.**

A) $b = -\dfrac{8}{5}y + 16$ **B)** $b = \dfrac{5}{8}y - 10$ **C)** $b = \dfrac{8}{5}y - 16$ **D)** $b = -\dfrac{5}{8}y + 10$
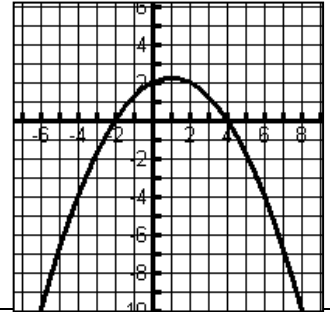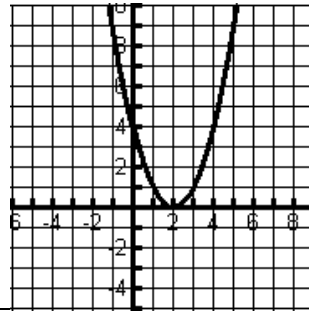
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28. Circle each quadratic equation and graph that has a solution at 4. You must circle all that apply.

$(x + 4)^2 = 0$ $(x + 3)(x - 4) = 0$

$(x + 2)^2 - 6 = 30$ $2x^2 + 16x + 32 = 0$

---

29. One of the solutions to g(x) = 2x² − 3x − 1 is

A) $\dfrac{1}{2}$ **B)** $-\dfrac{1}{2}$ **C)** $-\dfrac{3}{4} - \dfrac{\sqrt{17}}{4}$ **D)** $\dfrac{3}{4} - \dfrac{\sqrt{17}}{4}$

30.

In addition to an $80 bonus, Joan earned $8 per hour working last week. Joan's total earnings last week were $240. How many total hours did she work last week?

     A   10

     B   20

     C   30

     D   40

---

31   Kristen heard that it is $82°$ Fahrenheit outside. She knows that $F = \dfrac{9}{5}C + 32$ where F represents the temperature in degrees Fahrenheit and C represents the temperature in degrees Celsius. Which is closest to the temperature outside, in degrees Celsius?

     F   28

     G   63

     H   90

     J   180

32   **Which inequality is equivalent to $4x - 2y \leq 8$?**

A $y \leq 2x - 4$

B $y \geq 2x - 4$

C $y \leq {}^{-}2x - 4$

D $y \geq {}^{-}2x - 4$

---

33. Use the given numbers to create an ordered pair representing a solution to $y < x - 4$.

> **Directions: You may use a number twice. Be sure to write your answer in the space provided.**

ANSWER: (____ , ____)

-7	-2	0	3	5

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34. Identify each number that could be a solution to the inequality below. There may be more than one solution.

$$-2x + 7 \leq 9 - 3x$$

A -1	B 1	C 3	D 6	E 4

---

35. a) Graph the solution to the system of inequalities:

$$\begin{cases} 4y \geq x + 12 \\ 3y \geq 2x + 12 \end{cases}$$

b) Circle the point(s) that are part of the solution

(-7,-2)   (-6,0)   (-6,1)   (-4,2)   (