

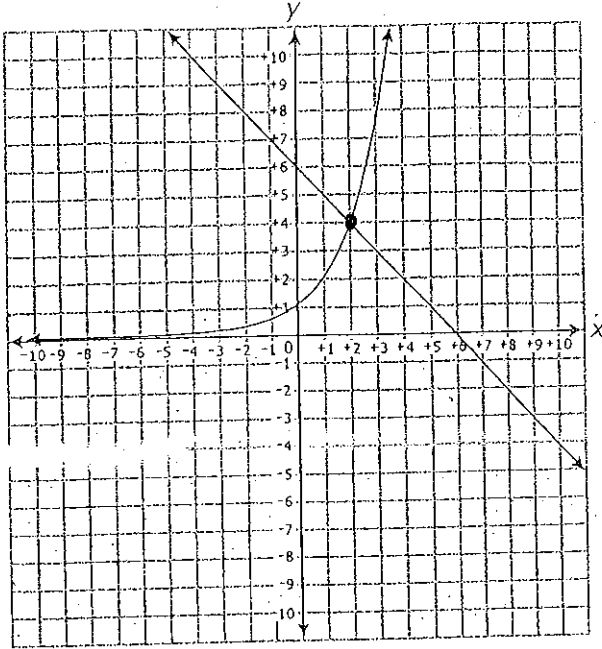
Integrated Math 1

Unit 5 Systems

Test Review

Name Key

- * ① The functions $f(x) = 2^x$ and $g(x) = -x + 6$ are graphed below. What is the solution to the equation $2^x = -x + 6$?

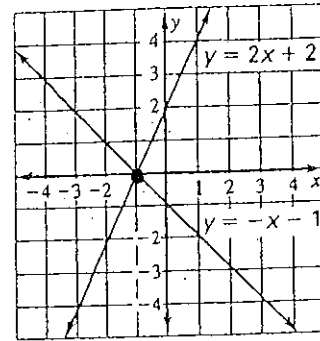


- A $x = -2$
- B $x = 1$
- C $x = 2$**
- D $x = 4$

- ② Which point represents the solution of the system of linear equations below?

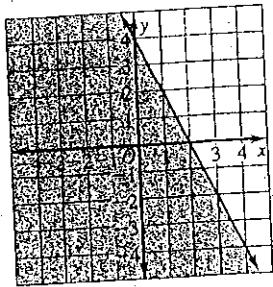
$$y = 2x + 2$$

$$y = -x - 1$$



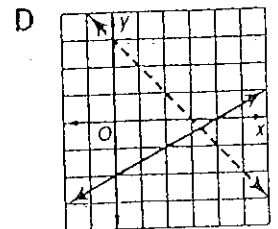
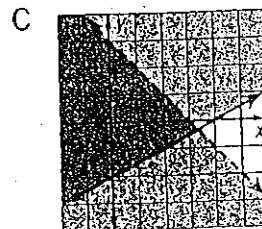
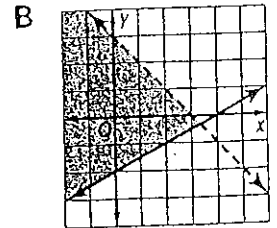
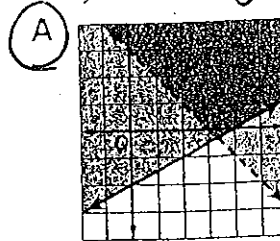
- A (0, 2)
- B (0, -1)
- C (-1, 0)**
- D (1, -2)

- ③ Which inequality is represented by the graph?



- ~~A~~ $2x + y < 4$
 - B** $2x + y \leq 4$
 - ~~C~~ $2x + y \leq -4$
 - ~~D~~ $2x + y \geq 2$
- $y \leq -2x + 4$

- ④ Which is the graph of the solution
- $$x - 2y \leq 4 \quad -2y \leq -x + 4 \quad y > -x + 3$$
- $$x + y > 3 \quad y > \frac{1}{2}x - 2$$



- * 5) How many solutions does the linear system have?
- $$\begin{array}{r} 2(3x + 2y = 10) \\ 6x + 4y = 15 \end{array}$$
- $$\begin{array}{r} -6x - 4y = -20 \\ 6x + 4y = 15 \\ \hline 0 = -5 \end{array}$$
- (A) none (B) exactly one
(C) exactly two (D) infinitely many

- * 7) How many solutions does the following system of linear equations have?

$$\begin{array}{r} 3x + 2y = 7 \\ 8x - 2y = -18 \end{array}$$

$$\begin{array}{r} 11x = -11 \\ x = -1 \end{array}$$

A infinite (C) one
B two D none

- 9) Which ordered pair is the solution to the following linear system of equations?

$$\begin{array}{r} y - 2x = 3 \\ y = -x - 3 \end{array}$$

$$\begin{array}{r} -x - 3 - 2x = 3 \\ -3x - 3 = 3 \\ -3x = 6 \\ x = -2 \end{array}$$

~~A~~ (2, 1)
B (-2, 1)
~~C~~ (2, -1)
(D) (-2, -1)

$$\begin{array}{r} y = 2 - 3 \\ y = -1 \end{array}$$

- 11) What is the solution to this system of linear equations?

$$\begin{array}{r} 3(4x + 4y = 4) \\ 4(3x - 3y = 27) \end{array}$$

$$\begin{array}{r} 12x + 12y = 12 \\ 12x - 12y = 108 \\ \hline 24x = 120 \\ x = 5 \end{array}$$

$$\begin{array}{r} 20 + 4y = 4 \\ 4y = -16 \\ y = -4 \end{array}$$

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

- * 6) How many solutions does the linear system have?

$$\begin{array}{r} 3(-3x + y = 9) \\ 9x - 3y = -27 \end{array}$$

$$\begin{array}{r} -9x + 3y = 27 \\ 9x - 3y = -27 \\ \hline 0 = 0 \end{array}$$

(A) none (B) exactly one
(C) two (D) infinitely many

- * 8) What is the y-value of the solution to this linear system of equations?

$$\begin{array}{r} 5y - x = 11 \\ x = 3y - 1 \end{array}$$

$$\begin{array}{r} 5y - (3y - 1) = 11 \\ 5y - 3y + 1 = 11 \\ 2y = 10 \\ y = 5 \end{array}$$

A 6 C 4
(B) 5 D 3

- 10) Which point represents the solution of the system of linear equations?

$$\begin{array}{r} -5(5x - y = -17) \\ x - 5y = -13 \end{array}$$

$$\begin{array}{r} -25x + 5y = -85 \\ x - 5y = -13 \\ \hline -24x = 72 \\ x = -3 \end{array}$$

$$\begin{array}{r} -3 - 5y = -13 \\ -5y = -10 \\ y = 2 \end{array}$$

(A) (-3, -3) (B) (-3, 2)
~~C~~ (3, -2) ~~D~~ (3, 2)

- 12) One plane is traveling toward the airport following the line $5x + 7y = 15$. Another plane is traveling toward the airport following the line $7x + 14y = 42$. What are the coordinates of the airport?

$$\begin{array}{r} -2(5x + 7y = 15) \\ 7x + 14y = 42 \end{array}$$

$$\begin{array}{r} -10x - 14y = -30 \\ 7x + 14y = 42 \\ \hline -3x = 12 \\ x = -4 \end{array}$$

$$\begin{array}{r} -20 + 7y = 15 \\ 7y = 35 \\ y = 5 \end{array}$$

(A) (-4, -5) ~~B~~ (5, -4)
(C) (-4, 5) ~~D~~ (4, 5)

13. The community theater has a capacity of 600 persons. Adult tickets are \$4 and children's tickets are \$2. If the theater group wishes to earn \$2000 from ticket sales, which system of equations could be used to determine how many adult tickets, a , and how many student tickets, s , should be sold?

- A. $a + s = 2000$
 $4a + 2s = 600$
- B. $a + s = 600$
 $2a + 4s = 2000$
- C. $4a + 2s = 2000$
 $4a + 2s = 600$
- D. $a + s = 600$
 $4a + 2s = 2000$

14. Shawna makes money selling bracelets and necklaces. Each bracelet sells for one price, and each necklace sells for another.

- 10 bracelets and 16 necklaces sell for \$389
- 16 bracelets and 10 necklaces sell for \$365.

How much does a necklace sell for?

\$16.50

$$\begin{array}{r} 16(10b + 16n = 389) \\ -10(16b + 10n = 365) \\ \hline 160b + 256n = 6224 \\ -160b - 100n = -3650 \\ \hline 156n = 2574 \end{array}$$

15. Two times Antonio's age plus three times Sarah's age equals 34. Sarah's age is also five times Antonio's age. How old is Sarah?

Sarah is 10

$$\begin{array}{r} 2A + 3S = 34 \\ S = 5A \end{array} \quad \begin{array}{r} 2A + 3(5A) = 34 \\ 17A = 34 \\ A = 2 \\ S = 5 \cdot 2 = 10 \end{array}$$

16. The sum of Elliot's age and twice Zane's age is 44. The difference of twice Elliot's age and Zane's age is -2. What is Elliot's age?

Elliot is 8

$$\begin{array}{r} E + 2Z = 44 \\ 2(2E - Z) = -2 \end{array} \quad \begin{array}{r} E + 2Z = 44 \\ 4E - 2Z = -4 \\ \hline 5E = 40 \\ E = 8 \end{array}$$

17. The admission fee at a small fair is \$1.50 for children and \$4.00 for adults. On a certain day, 2200 people enter the fair and \$5050 is collected. How many children and how many adults attended?

adults 700
 students 1500

$$\begin{array}{r} 1.50c + 4a = 5050 \\ -4(c + a = 2200) \end{array}$$

$$\begin{array}{r} 1.50c + 4a = 5050 \\ -4c - 4a = -8800 \\ \hline -2.50c = -3750 \\ c = 1500 \\ a = 700 \end{array}$$

18. The length of a rectangle garden is 3 yards more than twice the width. The perimeter of the yard is 36 yards. What are the width and length of the rectangle?

13 x 5

$$\begin{array}{r} l = 2w + 3 \\ 3l = 2l + 2w \\ 3l = 2(2w + 3) + 2w \\ 3l = 4w + 6 + 2w \end{array}$$

$$\begin{array}{r} 3l = 6w + 6 \\ 3l = 6w \\ w = 5 \\ l = 13 \end{array}$$

19. The difference of 2 numbers is -8. The difference of the first number and three times the second number is -4. Find the numbers.

-2 and -10

$$\begin{array}{r} -1(x - y = -8) \\ x - 3y = -4 \end{array} \quad \begin{array}{r} -x + y = 8 \\ x - 3y = -4 \\ \hline -2y = 4 \\ y = -2 \end{array}$$

$$\begin{array}{r} x + 2 = -8 \\ x = -10 \end{array}$$