

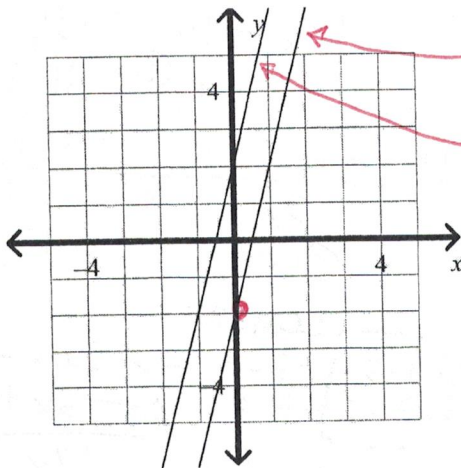
Unit 4 Test Alg 1

True/False

Indicate whether the statement is true or false.

T 1. True or false?

The graph shows the solution to the system $y = 4x - 2$ and $\frac{1}{2}y = 2x + 1$.



$y = 4x + 2$
mult by 2

Multiple Choice

Identify the choice that best completes the statement or answers the question. Write the letter of your answer on the line provided to the left.

C 2. Tom has a collection of 30 CDs and Nita has a collection of 10 CDs. Tom is adding 3 CDs a month to his collection while Nita is adding 7 CDs a month to her collection. Find the number of months after which they will have the same number of CDs.

a. 2 months
b. 3 months
c. 5 months
d. 45 months

$$30 + 3x = 10 + 7x$$

$$20 = 4x$$

$$5 = x$$

What is the solution of the system? Use substitution.

A 3. $6x - 2y = 6$
 $2x - y = 7$

a. (-4, -15) b. (2, 3) c. (2, -3) d. (-2, -8)

$$6x - 2(2x - 7) = 6$$

$$6x - 4x + 14 = 6$$

$$2x + 14 = 6$$

$$2x = -8$$

$$x = -4$$

How many solutions does the system have?

C 4. $x = 3y - 4$
 $5x - 15y = -20$

a. one solution
b. two solutions
c. infinitely many solutions
d. no solution

$$5(3y - 4) - 15y = -20$$

$$15y - 20 - 15y = -20$$

$$-20 = -20$$

$$0 = 0$$

True

?

5. Which solution is best found solving the system by substitution over graphing?

- a. $(2, -5)$
- b. $(0, 0)$
- c. $(\frac{6}{11}, -\frac{9}{11})$
- d. $(-10, -\frac{1}{2})$

B

6. A corner store sells two kinds of baked goods: cakes and pies. A cake costs \$13 and a pie costs \$10. In one day, the store sold 11 baked goods for a total of \$134. How many cakes did they sell?

- a. 5 cakes
- b. 8 cakes
- c. 11 cakes
- d. 3 cakes

$x + y = 11$ # baked goods

$13x + 10y = 134$
 $(x + y = 11) \cdot (-10)$
 $-10x - 10y = -110$
 \hline
 $3x = 24$
 $x = 8$

What is the solution of the system? Use elimination.

D

7. $2x - y = 2$
 $2x + y = 2$

- a. $(-1, 0)$
- b. $(0, 1)$
- c. $(0, -1)$
- d. $(1, 0)$

$4x = 4$
 $x = 1$

$(+)$
 \hline
 $3x = 24$
 $x = 8$

What is the solution of the system? Use elimination.

C

8. $5x = -30 + 5y$
 $20y = 103 + 3x$

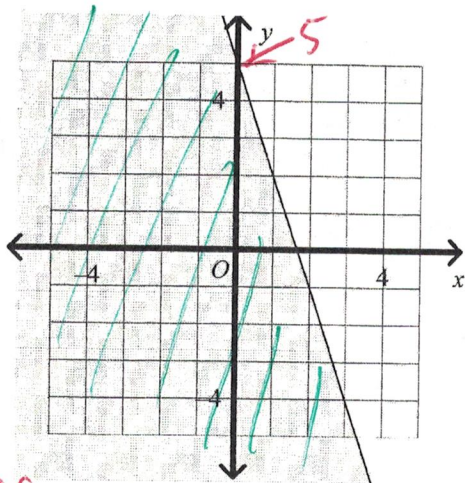
- a. $(5, 20)$
- b. $(5, -1)$
- c. $(-1, 5)$
- d. $(-1, 4)$

LCM: 20
 $4 \cdot (5x - 5y = -30) \rightarrow 20x - 20y = -120$
 $-3x + 20y = 103$
 \hline
 $17x = -17$
 $x = -1$

Which inequality represents the graph?

D

9.

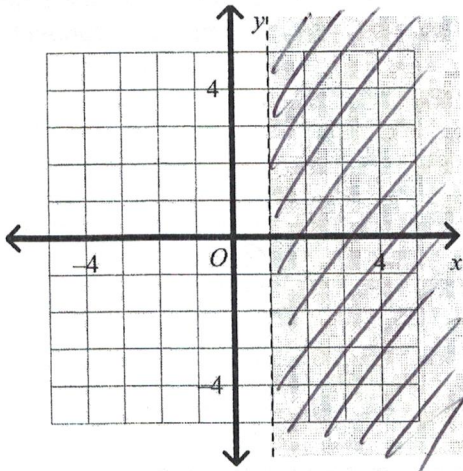


- a. $y \leq -3x - 5$
- b. $y \geq -3x + 5$
- c. $y \geq -3x - 5$
- d. $y \leq -3x + 5$

$5(-1) = -30 + 5y$
 $-5 = -30 + 5y$
 $25 = 5y$
 $5 = y$

less than

D 10.



a. $y > 1$

b. $x \geq 1$

c. $y \geq 1$

d. $x > 1$ *dashed*

Which ordered pair is a solution of the inequality?

B

11. $2y + 6 < 6x$

a. (5, 15) ?

b. (3, -1) ?

c. (3, 6)

d. (0, 5)

$2(15) + 6 < 6(5)$
 $30 + 6$
 $36 < 30$
 ☹️

$2(-1) + 6 < 6(3)$
 $-2 + 6 < 18$
 $4 < 18$
 😊

$2(6) + 6 < 6(3)$
 $12 + 6$
 $18 < 18$
 ☹️

$2(5) + 6 < 6(0)$
 $10 + 6$
 $16 < 0$
 ☹️

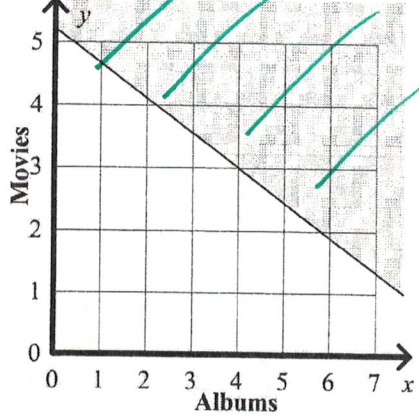
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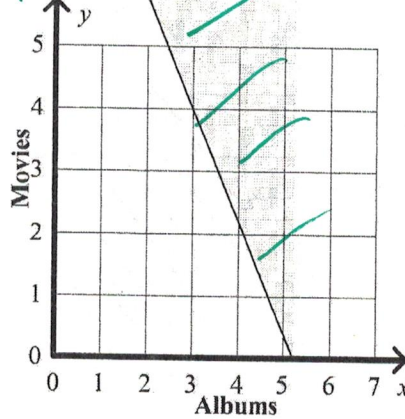
D

12. You have \$47 to spend on music and movie downloads. Each album download costs \$5 and each movie download costs \$9. Write and graph a linear inequality that represents this situation. Let x represent the number of albums and y the number of movies.

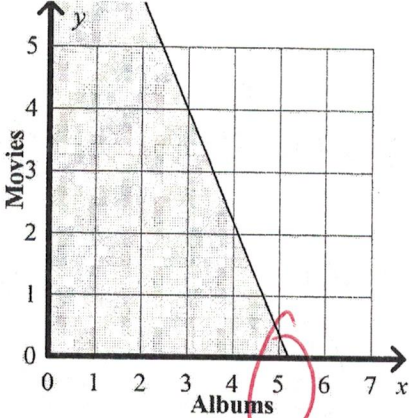
a. ~~$5x + 9y \geq 47$~~



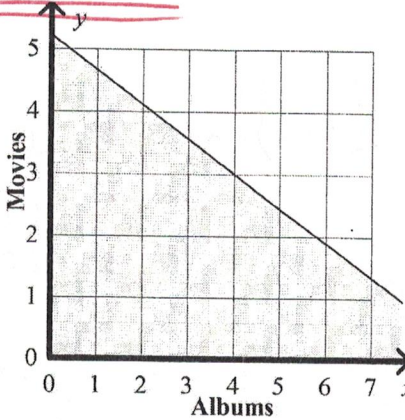
c. ~~$9x + 5y \geq 47$~~



b. $9x + 5y \leq 47$



d. $5x + 9y \leq 47$



C

13. Which inequality will use a solid line in its solution graph?

a. $y > -3x - 5$

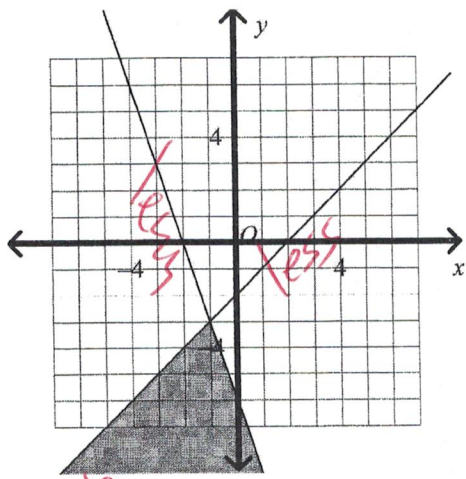
b. $y > x$

c. $y \leq 4x + 1$

d. $y < 2x$

What system of inequalities is represented by the graph?

14.



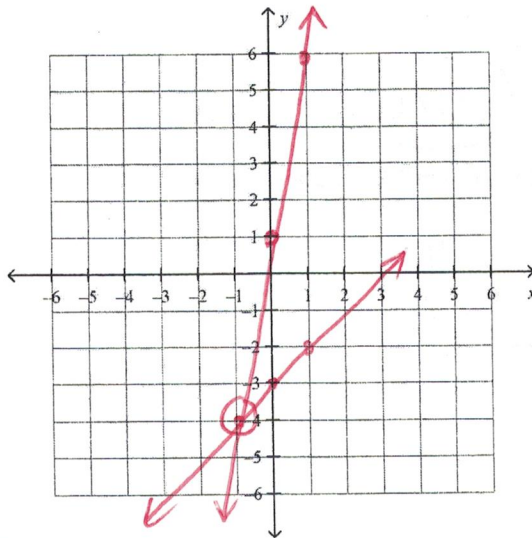
- a. ~~$y \geq x - 2$~~
- ~~$y \geq -3x - 6$~~
- b. ~~$y \leq x + 3$~~
- ~~$y \geq 2x - 6$~~

- c. $y \leq x - 2$
- $y \leq -3x - 6$
- d. ~~$y \geq x + 3$~~
- $y \leq 2x - 6$

Short Answer: Show all work for credit. Write your final answer on the line provided.

What is the solution of the system? Use a graph.

15. $y = 5x + 1$
 $y = x - 3$



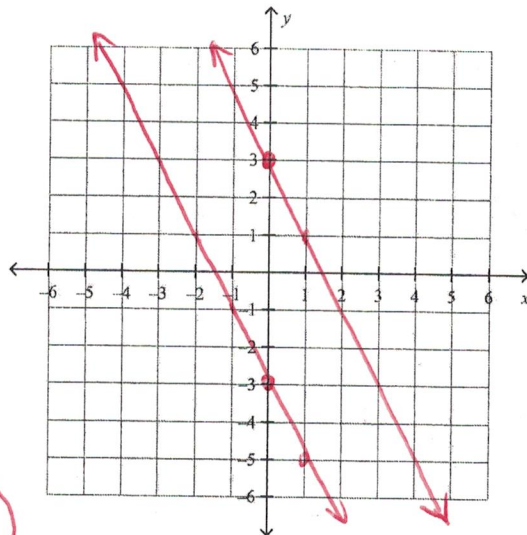
Solution: $(-1, -4)$

Name: _____

ID: Practice Test

What is the solution of the system? Use a graph.

16. $y = -2x + 3$
 $y = -2x - 3$



Solution: _____

no solution

How many solutions does the system have?

17. $y = 4x + 6$
 $4y - 16x = 12$

$$4(4x + 6) - 16x = 12$$
$$16x + 24 - 16x = 12$$
$$24 = 12$$

Number of solutions: _____

none

What is the solution of the system? Use substitution.

18. $y = 3x + 8$
 $y = 4x$

$$3x + 8 = 4x$$
$$(8) = x$$
$$y = 4(8)$$
$$= 32$$

Solution: _____

(8, 32)

What is the solution of the system? Use elimination.

19. $4x + y = -16$

$x + 3y = 7$

$$\begin{array}{r} 4x + y = -16 \\ x + 3y = 7 \quad (\times -4) \quad (+) \\ \hline -4x - 12y = -28 \\ \hline -11y = -44 \\ y = 4 \end{array}$$

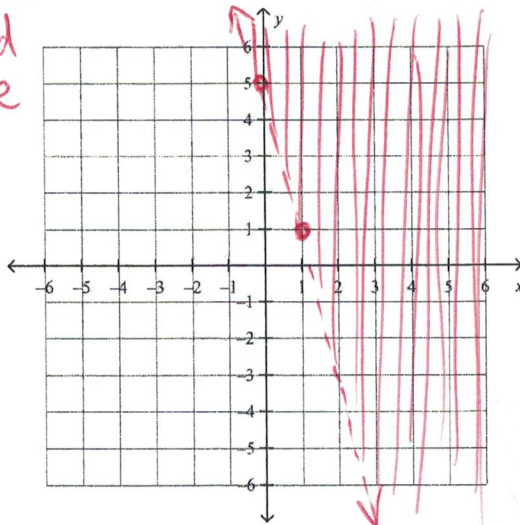
$$\begin{aligned} x + 3(4) &= 7 \\ x + 12 &= 7 \\ x &= -5 \end{aligned}$$

Solution: $(-5, 4)$

Graph the inequality.

20. $y > -4x + 5$

- dashed
- above



Name: _____

ID: Practice Test

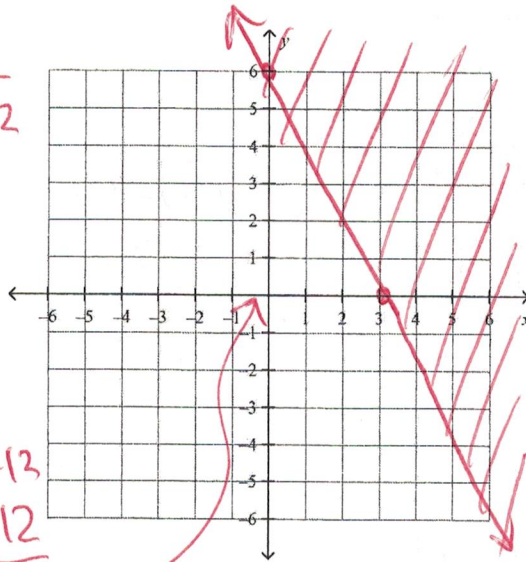
21. $4x + 2y \geq 12$

X-int | y-int
 $4x = 12$ | $2y = 12$
 $x = 3$ | $y = 6$

Shade Test

$(0, 0)$
 $4(0) + 2(0) \geq 12$
 $0 \geq 12$

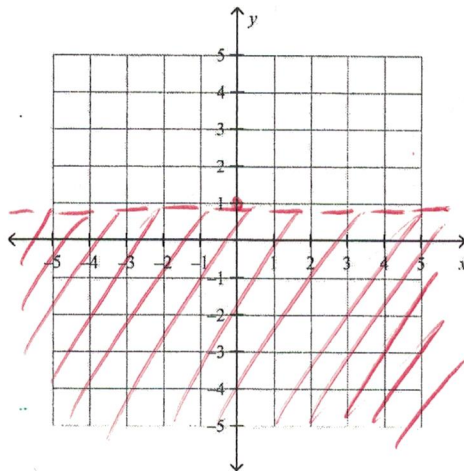
False



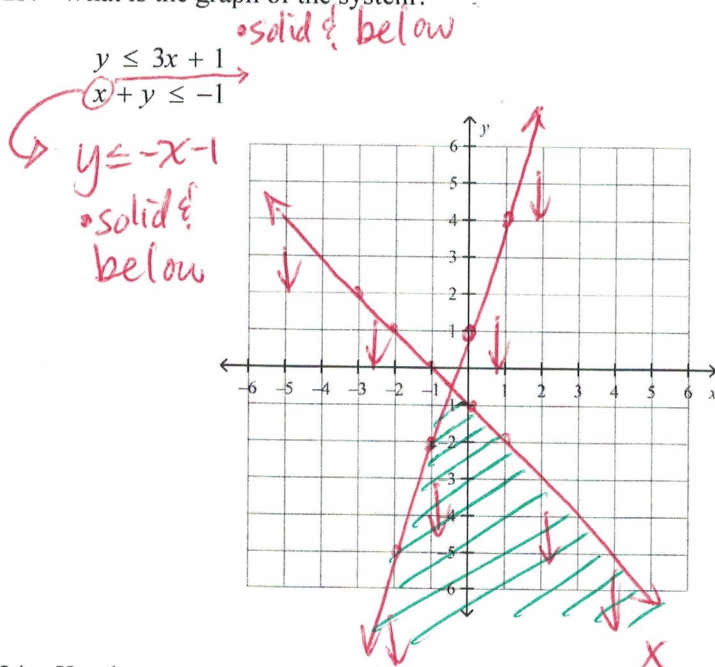
What is the graph of the inequality in the coordinate plane?

22. $y < 1$

- dashed
- below



23. What is the graph of the system?



24. Kendra owns a restaurant. She charges \$3.00 for 2 eggs and one piece of toast, and \$1.80 for one egg and one piece of toast. How much does Kendra charge for an egg? A piece of toast?

$$\begin{aligned}
 2x + y &= \$3 \\
 x + y &= \$1.80 \\
 \hline
 x &= 1.20
 \end{aligned}$$

$x = 1.20$

$$\begin{aligned}
 1.20 + y &= 1.80 \\
 -1.20 & \quad -1.20 \\
 \hline
 y &= 0.60
 \end{aligned}$$

Cost for an egg: \$1.20 Cost for a piece of toast: \$0.60