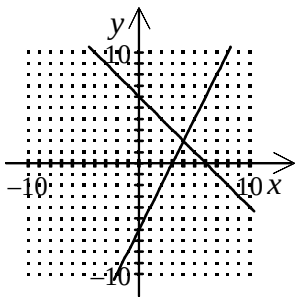
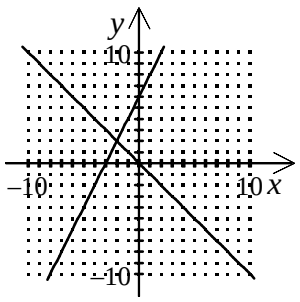
Chapter 3 Practice Test
Algebra 2
Coach Gaylord

1. Which shows the graph of the system of equations?
   $x + y = 6$
   $2x - y = 6$

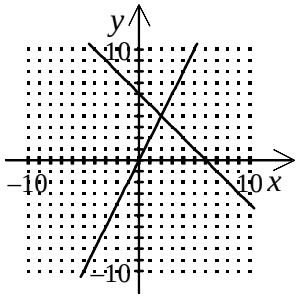
[A]



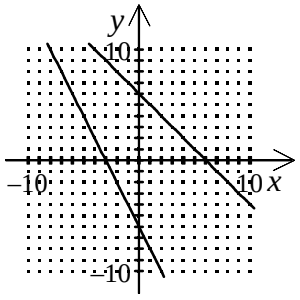
[B]



[C]



[D]



2. Solve the system of equations by graphing: $x + y = 7$
   $2x - y = 8$

3. Describe the system of equations as *consistent* and *independent*, *consistent* and *dependent*, or *inconsistent*: $-5y - 2x = -12$
   $-10y - 4x = -31$

4. Use the substitution method to solve the system: $8x + y = -38$
   $2x + 9y = 8$

5. Use the elimination method to solve the system: $7x + 4y = 27$
   $3x - 8y = -37$

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6. Graph the system of inequalities: $y \geq x$
$2x + y \leq -3$

7. Find the coordinates of the figure formed by the system of inequalities: $x \geq 0$
$y \geq 0$
$2x + y \leq 10$
$x + y \leq 9$

8. Graph the system of inequalities and find the maximum and minimum values of the given function: $x + y \geq 3$
$8x - 3y \leq 24$
$6y \leq 5x + 18$
$f(x, y) = 3x + 7y$

9. Rockridge Electronics, Inc., manufactures portable cassette and CD players. The manufacturing plant has the capacity to manufacture at most 750 cassette players and 500 CD players in one month. It takes 2 hours to make a cassette player and 5 hours to make a CD player and the company can spend no more than 3000 hours manufacturing these products. Rockridge Electronics makes $4 profit on cassette players and $7 profit on CD players. To maximize profits, how many CD players should they make?

[A] 250 [B] 500 [C] 300 [D] 750

10. Eleanor raises only free-range chickens and turkeys. She wants to raise no more than 60 animals with no more than 20 turkeys. She spends $1 to raise a chicken and $4 to raise a turkey. She has at most $105 to spend on the animals. Find the maximum profit Eleanor can make if she makes a profit of $3 per chicken and $8 per turkey. How many chickens should she raise?

[A] 15 [B] 35 [C] 25 [D] 45

11. Funtime Airways flies from Palau to Nauru weekly if at least 12 first class tickets and at least 16 tourist class tickets are sold. The plane can not carry more than 50 passengers. Funtime Airways makes $26 profit for each tourist class seat sold and $24 profit for each first class seat sold. In order for Funtime Airways to maximize its profits, how many of each type of seat should they sell? What is the maximum profit?

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12. Reynaldo Electronica manufactures radios and tape players. The manufacturing plant has the capacity to manufacture at most 600 radios and 500 tape players. It costs the company $10 to make a radio and $12 to make a tape player. The company can spend $8400 to make these products. Reynaldo Electronica makes a profit of $19 on each radio and $12 on each tape player. To maximize profits, how many of each product should they manufacture?

13. Solve the system of equations:
$$\begin{aligned} 5x - 3y + z &= -6 \\ y + 2z &= -13 \\ x + y + z &= -10 \end{aligned}$$

14. Erin has a combination of 28 quarters, nickels, and dimes. She has $3.15 total. She has three times as many dimes as quarters. Which of the following system of equations represents the number of coins Erin has?

[A] $q + d + n = 28$
$0.25q + 0.1d + 0.05n = 3.15$
$d = 3q$

[B] $q + d + n = 28$
$0.25q + 0.1d + 0.05n = 3.15$
$q = 3d$

[C] $q + d + n = 28$
$25q + 10d + 5n = 3.15$
$d = 3q$

[D] $q + d + n = 28$
$25q + 10d + 5n = 3.15$
$q = 3d$

15. People visited a museum on Monday, Tuesday, and Wednesday. On Wednesday twice as many people visited the museum as on Monday. Tuesday there were 12 more visitors than on Monday. The number of visitors combined on Tuesday and Wednesday was 438. Find the number of visitors on Monday, Tuesday, and Wednesday.

[A] Monday: 300
Tuesday: 288
Wednesday: 150

[B] Monday: 150
Tuesday: 138
Wednesday: 300

[C] Monday: 142
Tuesday: 154
Wednesday: 284

[D] Monday: 284
Tuesday: 142
Wednesday: 296

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16. Reggie bought two pens, a notebook, and two binders for $8.65. Amanda bought a pen, two notebooks, and a binder for $6.35. Christine bought five pens, three notebooks and a binder for $9.90. Find the cost of a pen, a notebook, and a binder.

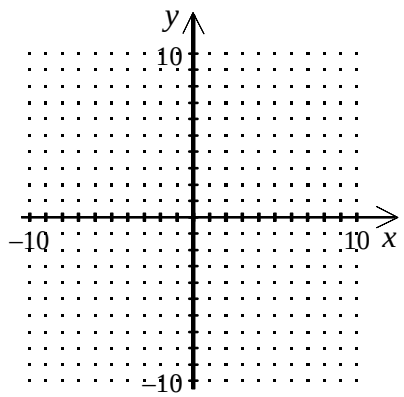
[A] pen: $0.40
notebook: $1.59
binder: $3.13

[B] pen: $0.63
notebook: $1.03
binder: $3.66

[C] pen: $0.55
notebook: $1.35
binder: $3.10

[D] pen: $0.85
notebook: $1.35
binder: $2.80

[1] _____

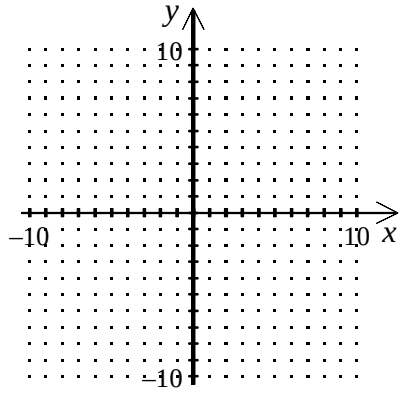


[2] _____

[3] _____

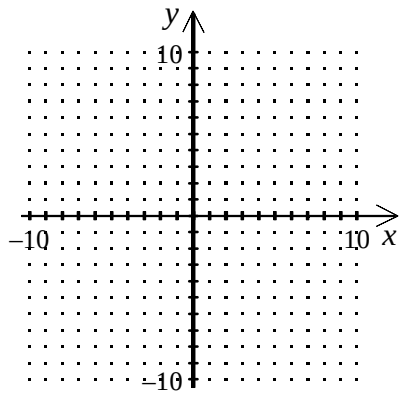
[4] _____

[5] _____



[6] _____

[7] _____



[8] _____

[9] _____

[10] _____

[11] _____

[12] _____

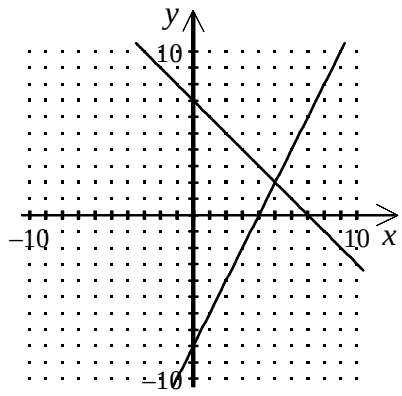
[13] _____

[14] _____

[15] _____

[16] _____

[1] [A]

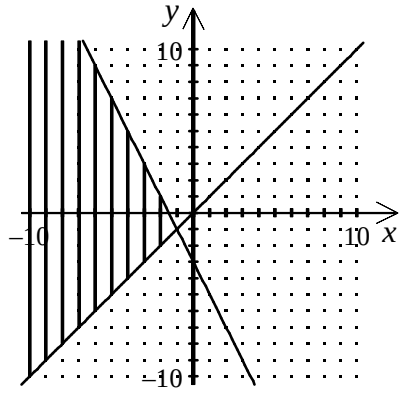


[2] $(5,\ 2)$

[3] inconsistent

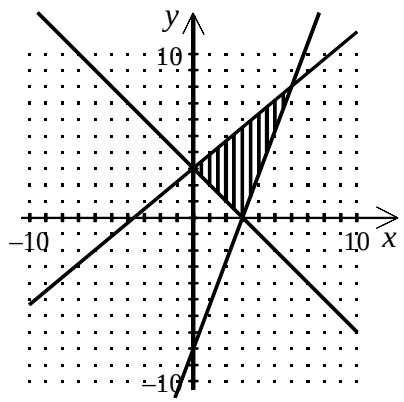
[4] $(-5,\ 2)$

[5] $(1,\ 5)$



[6]

[7] $(0,\ 0),\ (0,\ 9),\ (1,\ 8),\ (5,\ 0)$



[8] The maximum value of f is 74 at $(6,\ 8)$ and the minimum value is 9 at $(3,\ 0)$.

[9] [C]

[10] [D]

[11] 38 tourist seats and 12 first class seats; maximum profit is $1276.

[12] 600 radios and 200 tape players

[13] $(-2,\ -3,\ -5)$

[14] [A]

[15] [C]

[16] [C]