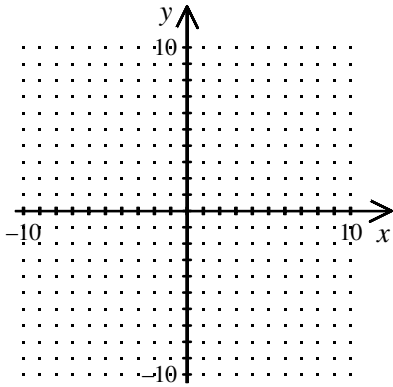


Algebra 2 Review
Chapter 3

Solve the system of equations by graphing:

1. $x + y = 7$
 $3x - y = 9$



[1] _____

Use the substitution method to solve the system:

4. $3x - 2y = 0$
 $y = x - 1$

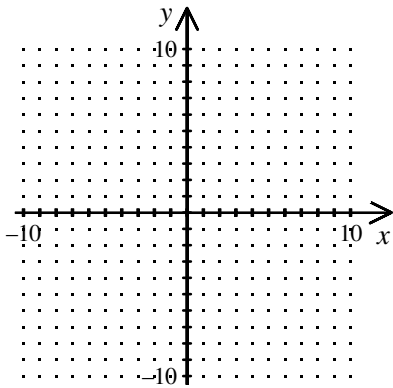
- [A] $(-2, -3)$ [B] $\left(-3, -\frac{9}{2}\right)$
[C] $(-1, -2)$ [D] no solution

[4] _____

5. $3x - y = -20$
 $3x + 2y = -32$

[5] _____

2. $x + y = 5$
 $2x - y = 4$



[2] _____

Use the elimination method to solve the system:

6. $3x - 4y = -15$
 $2x + 3y = 7$

- [A] $(-1, 3)$ [B] $(-1, -3)$
[C] dependent (many solutions)
[D] inconsistent (no solution)

[6] _____

7. $7x + 3y = 53$
 $5x - 2y = 13$

[7] _____

3. Describe the system of equations: $y = x - 11$
 $-2y = -3x + 11$

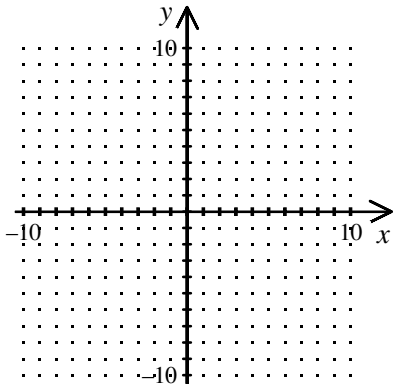
- [A] consistent and independent [C] consistent and dependent
[B] inconsistent

[3] _____

Graph the system of inequalities:

$$8. \quad y \leq x - 2$$

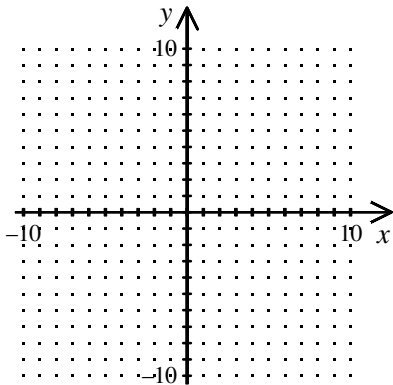
$$2x + y \leq -8$$



[8] _____

$$9. \quad y \geq x - 8$$

$$2x + y \leq 7$$



[9] _____

Find the maximum and minimum values of the function subject to the given constraints:

$$10. \quad x + y \geq 1$$

$$7x - 5y \leq 7$$

$$6y \leq 6x + 6$$

$$f(x, y) = 4x + 7y$$

- [A] The maximum value of f is 84 at $(7, 8)$ and the minimum value is 8 at $(2, 0)$.
- [B] The maximum value of f is 73 at $(6, 7)$ and the minimum value is 4 at $(1, 0)$.
- [C] The maximum value of f is 62 at $(5, 6)$ and the minimum value is 0 at $(0, 0)$.
- [D] The maximum value of f is 81 at $(8, 7)$ and the minimum value is -4 at $(-1, 0)$.

[10] _____

$$11. \quad x + y \geq 2$$

$$7x - 4y \leq 14$$

$$6y \leq 5x + 12$$

$$f(x, y) = 4x + 6y$$

- [A] The maximum value of f is 74 at $(8, 7)$ and the minimum value is 0 at $(0, 0)$.
- [B] The maximum value of f is 66 at $(6, 7)$ and the minimum value is 8 at $(2, 0)$.
- [C] The maximum value of f is 56 at $(5, 6)$ and the minimum value is 4 at $(1, 0)$.
- [D] The maximum value of f is 76 at $(7, 8)$ and the minimum value is 12 at $(3, 0)$.

[11] _____

12. Fly-High Airlines sells business class and tourist class seats for its charter flights. To charter a plane at least 5 business class tickets must be sold and at least 9 tourist class tickets must be sold. The plane does not hold more than 30 passengers. Fly-High makes \$40 profit for each business class ticket sold and \$45 profit for each tourist class ticket sold. In order for Fly-High Airlines to maximize its profits, how many tourist class seats should they sell?

- [A] 25
- [B] 30
- [C] 23
- [D] 21

[12] _____

13. 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] 35 [B] 15 [C] 45 [D] 25

[13] _____

14. The Plexus Dance Theatre Company will appear at the University of Georgia. According to school policy, no more than 2000 general admission tickets can be sold and no more than 4000 student tickets can be sold. It costs \$0.50 per ticket to advertise the dance company to the students and \$1 per ticket to advertise to the general public. The dance company has an advertising budget of \$3000 for this show. Find the maximum profit the company can make if it charges \$4 for a student ticket and \$7 for a general admission ticket. How many student tickets should they sell?

- [A] 3750 [B] 1000 [C] 4000 [D] 2000

[14] _____

15. Tauofa'a Peli's Healthy Tropical Restaurant fruit salad recipe includes mango and pineapple. Mango has 7 milligrams of calcium and 1 milligram of ascorbic acid per cup. Pineapple has 3 milligrams of calcium and 4 milligrams of ascorbic acid per cup. The mango and pineapple do not exceed 30 cups. When the two fruits are combined there must be at least 130 milligrams of calcium and 40 milligrams of ascorbic acid. Minimize the number of calories in the recipe if pineapple has 75 calories per cup and mango has 135 calories per cup. How much mango should be added to the fruit salad recipe?

- [A] 6 cups [B] 10 cups
[C] 16 cups [D] 3 cups

[15] _____

16. Solve the system of equations: $2x + 2y + z = 8$

$$3x - 2y - 2z = -20$$

$$2x + 2y - z = 4$$

- [A] $(-2, 5, 2)$ [B] $(-2, -5, 22)$

- [C] $\left(7, \frac{5}{2}, 3\right)$ [D] $(-1, 5, 0)$

[16] _____

17. 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: 150 [B] Monday: 142
Tuesday: 138 Tuesday: 154
Wednesday: 300 Wednesday: 284

- [C] Monday: 284 [D] Monday: 300
Tuesday: 142 Tuesday: 288
Wednesday: 296 Wednesday: 150

[17] _____

18. 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 [B] pen: \$0.63
notebook: \$1.59 notebook: \$1.03
binder: \$3.13 binder: \$3.66

- [C] pen: \$0.55 [D] pen: \$0.85
notebook: \$1.35 notebook: \$1.35
binder: \$3.10 binder: \$2.80

[18] _____

19. Find the coordinates of the figure formed by the system of inequalities: $3y \leq 3x + 15$

$$8x + 3y \leq 70$$

$$5x + 6y \geq 52$$

- [A] $(8, 10), (5, 7), (2, 2)$ [B] $(2, 10), (5, 2), (8, 7)$

- [C] $(5, 10), (2, 7), (5, 2)$ [D] $(5, 10), (2, 7), (8, 2)$

[19] _____