

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Decide whether or not the ordered pair is a solution of the system.

- 1) $(-4, -3)$ 1) _____
 $x + y = -7$
 $x - y = -1$
A) Yes B) No
- 2) $(-5, 2)$ 2) _____
 $x + y = 7$
 $x - y = 3$
A) Yes B) No
- 3) $(6, -4)$ 3) _____
 $2x + y = 8$
 $3x + 2y = 10$
A) No B) Yes
- 4) $(-6, -3)$ 4) _____
 $2x + y = -9$
 $4x + 2y = -18$
A) No B) Yes
- 5) $(-2, 6)$ 5) _____
 $3x = 0 - y$
 $2x = 14 - 3y$
A) Yes B) No
- 6) $(-3, 2)$ 6) _____
 $3x = 11 - y$
 $2x = 12 - 3y$
A) No B) Yes
- 7) $(9, 6)$ 7) _____
 $y = \frac{2}{3}x$
 $3x + y = 33$
A) Yes B) No

8) $(10, 6)$

$$y = \frac{3}{5}x$$

$$2x + y = 14$$

A) No

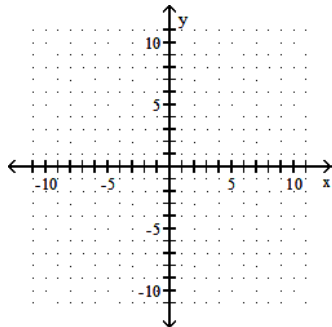
B) Yes

8) _____

Solve the system by graphing.

9) $x + y = 6$

$$x - y = -12$$



A) No solution

C) Infinite number of solutions

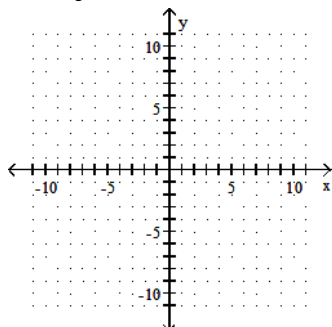
B) $(-3, 9)$

D) $(9, -3)$

9) _____

10) $4x + y = -13$

$$x + 4y = 8$$



A) $(-3, -1)$

B) $(-4, -5)$

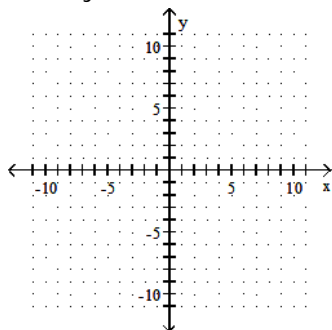
C) $(4, 3)$

D) $(-4, 3)$

10) _____

11) $4x + y = -11$
 $3x + 6y = 18$

11) _____



A) $(-2, -3)$

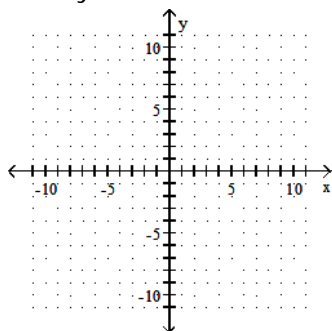
B) $(-4, 5)$

C) $(-4, -5)$

D) $(4, 5)$

12) $3x + 4y = 25$
 $2x + 3y = 17$

12) _____



A) $(1, 7)$

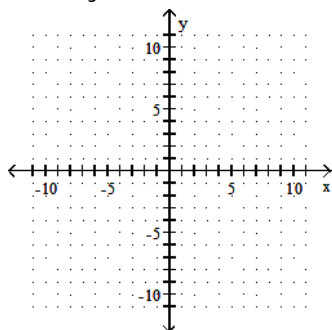
B) No solution

C) $(3, 11)$

D) $(7, 1)$

13) $3x + 2y = 5$
 $-6x - 4y = 5$

13) _____



A) $(1, 1)$

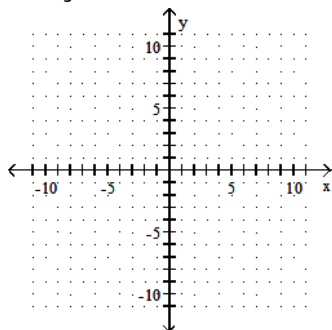
B) $(-1.5, -1)$

C) No solution

D) $(1.5, -1)$

14) $9x + y = 27$
 $9x + y = 81$

14) _____

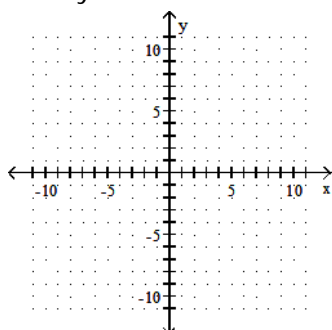


- A) Infinite number of solutions
 C) (25, -198)

- B) (18, 9)
 D) No solution

15) $3x + y = 10$
 $6x + 2y = 20$

15) _____

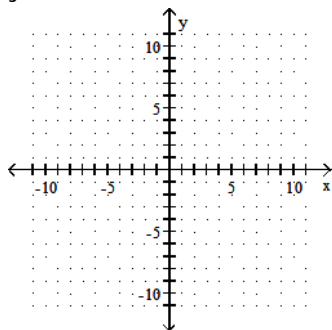


- A) No solution
 C) (5, -5)

- B) Infinite number of solutions
 D) (0, 10)

16) $x = -y$
 $y + x = 6$

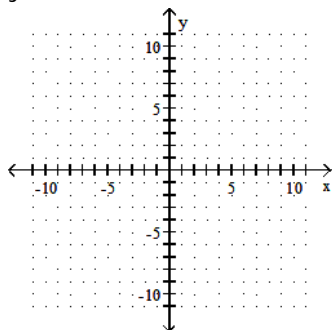
16) _____



- A) (1, 1)
 C) (1, 5)

- B) Infinite number of solutions
 D) No solution

17) $x = 5$
 $y = 3$



- A) Infinitely many solutions
 C) No solution

- B) (3, 5)
 D) (5, 3)

17) _____

Solve using the substitution method.

18) $x + y = -5$
 $y = -5x + 3$

A) (1, -5)

B) (3, -15)

C) (2, -7)

D) (-7, 2)

18) _____

19) $y = 4x + 3$
 $3x + y = 3$

A) (3, 0)

B) (-1, -1)

C) (0, 3)

D) (3, -6)

19) _____

Solve by the substitution method.

20) $x + 7y = -50$
 $4x + 6y = -46$

A) (-2, -6)

B) No solution

C) (1, -6)

D) (-1, -7)

20) _____

21) $x + 2y = 2$
 $6x + 3y = 3$

A) (-1, 0)

B) (1, 0)

C) No solution

D) (0, 1)

21) _____

22) $x + 8y = -3$
 $2x + 9y = -6$

A) (3, -1)

B) No solution

C) (-2, -3)

D) (-3, 0)

22) _____

23) $7x + 5y = 38$
 $3x + 2y = 16$

A) (4, 3)

B) No solution

C) (3, 3)

D) (4, 2)

23) _____

24) $8x + 5y = -25$
 $4x + 3y = -15$

A) (0, -5)

B) (-1, -4)

C) No solution

D) (0, -4)

24) _____

- 25) $5x + 9y = -15$
 $3x + 6y = -9$
 A) $(-3, 1)$ B) No solution C) $(-3, 0)$ D) $(-4, 1)$ 25) _____
- 26) $7x + 46 = 8y$
 $-2x + 5y = 24$
 A) $(-2, 5)$ B) $(-2, 4)$ C) $(-3, 5)$ D) No solution 26) _____
- 27) $x + y = -4$
 $x + y = -2$
 A) $(-4, -2)$ B) $(0, 0)$ C) $(0, -6)$ D) No solution 27) _____
- 28) $x + y = 9$
 $2x + 2y = 18$
 A) $(0, 0)$ B) Infinite number of solutions
 C) $(9, 0)$ D) $(9, 2)$ 28) _____

Solve the problem.

- 29) The sum of two numbers is 37 and their difference is 15. Find the numbers. 29) _____
 A) 13 and 28 B) 23 and 14 C) 24 and 13 D) 26 and 11
- 30) The difference between two numbers is 6. Twice the smaller number plus twice the larger is 32. What are the numbers? 30) _____
 A) 6 and 12 B) 3 and 9 C) 5 and 11 D) 4 and 10
- 31) Two angles have a sum of 91° . Their difference is 21° . Find the angles. 31) _____
 A) 71° and 20° B) 54° and 37° C) 37° and 58° D) 56° and 35°
- 32) The sum of two angles is 246° . One angle is 21° less than twice the other. Find the angles. 32) _____
 A) 153° and 93° B) 89° and 157° C) 87° and 159° D) 87° and 153°
- 33) The perimeter of a rectangle is 38 cm. One side is 9 cm longer than the other side. Find the lengths of the sides. 33) _____
 A) 8 cm, 17 cm B) 5 cm, 14 cm C) 5 cm, 9 cm D) 10 cm, 19 cm
- 34) The perimeter of a rectangle is 52 m. If the width were doubled and the length were increased by 24 m, the perimeter would be 114 m. What are the length and width of the rectangle? 34) _____
 A) width 13 m, length 13 m B) width 19 m, length 7 m
 C) width 7 m, length 19 m D) width 8 m, length 13 m
- 35) The perimeter of a triangle is 60 cm. The triangle is isosceles now, but if its base were lengthened by 3 cm and each leg were shortened by 6 cm, it would be equilateral. Find the base of the original triangle. 35) _____
 A) 14 cm B) 23 cm C) 13 cm D) 17 cm

Solve using the elimination method.

- 36) $x + y = 2$
 $x - y = 12$
A) $(-7, -4)$ B) No solution C) $(7, -5)$ D) $(6, -4)$ 36) _____
- 37) $-x - 7y = 38$
 $-6x + 7y = -17$
A) No solution B) $(5, -3)$ C) $(-2, -6)$ D) $(-3, -5)$ 37) _____
- 38) $-x - 5y = -34$
 $2x + 5y = 28$
A) No solution B) $(6, 7)$ C) $(-5, -6)$ D) $(-6, 8)$ 38) _____
- 39) $5x - y = 26$
 $4x + y = 28$
A) $(6, 5)$ B) No solution C) $(4, 6)$ D) $(6, 4)$ 39) _____
- 40) $6x + 5y = 2$
 $8x - 5y = 96$
A) $(-8, 7)$ B) $(-7, -8)$ C) $(7, -8)$ D) $(8, 7)$ 40) _____
- 41) $5x - y = 19$
 $-5x + y = -19$
A) No solution B) $(4, 2)$
C) $(1, 4)$ D) Infinite number of solutions 41) _____

Solve by elimination.

- 42) $x + y = 9$
 $x - y = -3$
A) $(-3, 7)$ B) $(3, 6)$ C) No solution D) $(2, 7)$ 42) _____
- 43) $x + 5y = -9$
 $2x + 5y = -3$
A) $(6, -3)$ B) No solution C) $(3, 6)$ D) $(7, -4)$ 43) _____
- 44) $x - 6y = -32$
 $-7x - 7y = -21$
A) $(-3, 6)$ B) $(-2, 5)$ C) No solution D) $(2, 6)$ 44) _____
- 45) $x - 6y = 24$
 $-7x - 5y = 20$
A) No solution B) $(0, -4)$ C) $(1, -5)$ D) $(4, 0)$ 45) _____

- 46) $6x + 9y = 27$
 $4x - 6y = -18$
 A) $(-1, 4)$ B) No solution C) $(0, 3)$ D) $(0, 4)$ 46) _____
- 47) $4x + 8y = -8$
 $2x - 2y = -4$
 A) $(-2, 0)$ B) $(-2, 1)$ C) $(-3, 1)$ D) No solution 47) _____
- 48) $-6x + 6y = -1$
 $12x - 12y = 2$
 A) Infinite number of solutions B) No solution
 C) $(-6, 6)$ D) $(6, -6)$ 48) _____
- 49) $2x + 4y = -5$
 $-4x - 8y = -10$
 A) Infinite number of solutions B) $(-10, -20)$
 C) No solution D) $(10, 20)$ 49) _____
- 50) $2x - 5y = -220$
 $0.06x + 0.2y = 6$
 A) $(-19, 35)$ B) $(19, 40)$ C) $(20, -36)$ D) $(-20, 36)$ 50) _____
- 51) $x - \frac{2}{3}y = \frac{89}{12}$
 $\frac{2}{3}x + y = -\frac{19}{2}$
 A) $\left(\frac{3}{4}, -10\right)$ B) $\left(-10, -\frac{3}{4}\right)$ C) $\left(\frac{3}{4}, 10\right)$ D) $\left(10, \frac{3}{4}\right)$ 51) _____

Solve the problem.

- 52) Two angles are supplementary, and one is 40° more than three times the other. Find the smaller angle.
 A) 105° B) 145° C) 75° D) 35° 52) _____
- 53) In a right triangle, one acute angle is 54° more than twice the other. Find each acute angle.
 A) 12° and 78° B) 21° and 69° C) 37° and 53° D) 28° and 62° 53) _____
- 54) Two angles are supplementary, and one is 5° more than six times the other. Find the larger angle.
 A) 110° B) 25° C) 155° D) 70° 54) _____
- 55) Best Rentals charges a daily fee plus a mileage fee for renting its cars. Barney was charged \$120 for 3 days and 300 miles, while Mary was charged \$223 for 5 days and 600 miles. What does Best Rental charge per day and per mile?
 A) \$23 per day and 17¢ per mile B) \$16 per day and 24¢ per mile
 C) \$18 per day and 24¢ per mile D) \$17 per day and 23¢ per mile 55) _____

- 56) There were 34,000 people at a ball game in Los Angeles. The day's receipts were \$232,000. How many people paid \$12 for reserved seats and how many paid \$4 for general admission? 56) _____
 A) 24,000 paid \$12 and 10,000 paid \$4 B) 22,000 paid \$12 and 12,000 paid \$4
 C) 10,000 paid \$12 and 24,000 paid \$4 D) 12,000 paid \$12 and 22,000 paid \$4
- 57) There were 350 people at a play. The admission price was \$2 for adults and \$1 for children. The admission receipts were \$540. How many adults and how many children attended? 57) _____
 A) 160 adults and 190 children B) 135 adults and 215 children
 C) 190 adults and 160 children D) 80 adults and 270 children
- 58) A salesman sold \$100 more than the rest of the sales staff. If the sales total for the day was \$2100, how much did the rest of the sales staff sell? 58) _____
 A) \$1100 B) \$1000 C) \$2000 D) \$1050
- 59) Joe has a collection of nickels and dimes that is worth \$5.00. If the number of dimes were doubled and the number of nickels were increased by 19, the value of the coins would be \$7.95. How many dimes does he have? 59) _____
 A) 19 dimes B) 60 dimes C) 20 dimes D) 10 dimes
- 60) Mrs. Boyd has a desk full of quarters and nickels. If she has a total of 15 coins with a total face value of \$2.35, how many of the coins are nickels? 60) _____
 A) 8 nickels B) 13 nickels C) 7 nickels D) 9 nickels
- 61) Andy has 18 coins made up of quarters and half dollars, and their total value is \$7.00. How many quarters does he have? 61) _____
 A) 8 quarters B) 10 quarters C) 13 quarters D) 12 quarters
- 62) Ron and Kathy are ticket-sellers at their class play, Ron handling student tickets that sell for \$1.00 each and Kathy selling adult tickets for \$5.50 each. If their total income for 16 tickets was \$38.50, how many did Ron sell? 62) _____
 A) 11 tickets B) 13 tickets C) 5 tickets D) 10 tickets
- 63) Helen Weller invested \$10,000 in an account that pays 12% simple interest. How much additional money must be invested in an account that pays 15% simple interest so that the total interest is equal to the interest on the two investments at the rate of 13%? 63) _____
 A) \$5000 B) \$6000 C) \$10,000 D) \$7000
- 64) Roberto invested some money at 7%, and then invested \$4000 more than twice this amount at 12%. His total annual income from the two investments was \$3890. How much was invested at 12%? 64) _____
 A) \$26,000 B) \$22,000 C) \$12,000 D) \$2600

- 65) Tim and Judy mix two kinds of feed for pedigreed dogs. They wish to make 31 pounds of feed worth \$0.30 per pound by mixing one kind worth \$0.22 per pound with another worth \$0.39 per pound. How many pounds of the cheaper kind should they use in the mix? Round to the nearest whole pound if necessary. 65) _____
 A) 20 pounds B) 18 pounds C) 16 pounds D) 15 pounds
- 66) Ellen wishes to mix candy worth \$1.69 per pound with candy worth \$3.50 per pound to form 28 pounds of a mixture worth \$2.21 per pound. How many pounds of the more expensive candy should she use? 66) _____
 A) 20 pounds B) 13 pounds C) 8 pounds D) 22 pounds
- 67) A contractor mixes concrete from bags of pre-mix for small jobs. How many bags with 4% cement should he mix with 6 bags of 21% cement to produce a mix containing 10% cement? 67) _____
 A) 22 bags B) 13 bags C) 11 bags D) 17 bags
- 68) Anne and Nancy use a metal alloy that is 17.3% copper to make jewelry. How many ounces of a 13% alloy must be mixed with a 20% alloy to form 70 ounces of the desired alloy? 68) _____
 A) 29 ounces B) 48 ounces C) 27 ounces D) 43 ounces
- 69) How many liters of a 10% alcohol solution must be mixed with 60 liters of a 70% solution to get a 60% solution? 69) _____
 A) 12 L B) 72 L C) 7.2 L D) 1.2 L
- 70) In a chemistry class, 6 liters of a 4% silver iodide solution must be mixed with a 10% solution to get a 6% solution. How many liters of the 10% solution are needed? 70) _____
 A) 2.0 L B) 3.0 L C) 4.0 L D) 6.0 L
- 71) A merchant has coffee worth \$30 a pound that she wishes to mix with 30 pounds of coffee worth \$80 a pound to get a mixture that can be sold for \$60 a pound. How many pounds of the \$30 coffee should be used? 71) _____
 A) 20 lb B) 25 lb C) 50 lb D) 10 lb
- 72) A boat traveled for 3 hr with a 7-mph current to reach a picnic area. The return trip against the same current took 6 hr. Find the speed of the boat in still water. 72) _____
 A) 49 mph B) 21 mph C) 28 mph D) 84 mph
- 73) James walks and jogs to his favorite coffee shop to study each weekend. He averages 3 mph walking and 4 mph jogging. The distance from his home to the coffee shop is 13 mi, and he makes the trip in 4 hr. How long does James jog? 73) _____
 A) 2 hr B) 1 hr C) 4 hr D) 3 hr
- 74) An airplane took 5 hr to fly 600 mi against a head wind. The return trip with the same wind took 2 hr. Find the speed of the plane in still air. 74) _____
 A) 300 mph B) 90 mph C) 120 mph D) 210 mph

- 75) Cindy's bike got a flat tire and she must walk the rest of the way to work. The bike was being ridden at 10 mph, and Cindy walks at a speed of 3 mph. The distance from home to work is 16 mi, and the total time for the trip was 3 hr. How far did she have to walk? 75) _____
 A) 1 mi B) 10 mi C) 2 mi D) 6 mi
- 76) Two cars leave town at the same time going in the same direction. One travels at 40 mph and the other travels at 65 mph. In how many hours will they be 150 mi apart? 76) _____
 A) 25 hr B) 6 hr C) 1 hr D) 40 hr
- 77) A private airplane leaves an airport and flies due east at 175 mph. Two hours later, a jet leaves the same airport and flies due east at 315 mph. When will the jet overtake the plane? 77) _____
 A) $4\frac{1}{2}$ hr B) $\frac{5}{9}$ hr C) $1\frac{4}{5}$ hr D) $2\frac{1}{2}$ hr
- 78) The speed of a stream is 6 mph. If a boat travels 70 miles downstream in the same time that it takes to travel 35 miles upstream, what is the speed of the boat in still water? 78) _____
 A) 20 mph B) 21 mph C) 12 mph D) 18 mph
- 79) A plane flies 500 miles with the wind and 300 miles against the wind in the same length of time. If the speed of the wind is 21 mph, what is the speed of the plane in still air? 79) _____
 A) 89 mph B) 109 mph C) 74 mph D) 84 mph
- 80) From a point on a river, two boats are driven in opposite directions, one at 8 miles per hour and the other at 10 miles per hour. In how many hours will they be 72 miles apart? 80) _____
 A) 5 hr B) 1 hr C) 4 hr D) 6 hr
- 81) Candy and Delvis are riding bicycles in the same direction. Candy is traveling at the speed of 8 miles per hour, and Delvis is traveling at the speed of 13 miles per hour. In 5 hours what is the distance between them? 81) _____
 A) 34 mi B) 22 mi C) 25 mi D) 26 mi

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

- 82) Explain why the solution of a system of equations is the point of intersection of the graphs of the equations. 82) _____
- 83) Describe the three possible outcomes when graphing a system of equations, and relate each to the type of solution(s) each system has. 83) _____
- 84) Describe two advantages of the substitution method over the graphing method for solving systems of equations. 84) _____

- 85) Under what circumstances can a system of equations be solved more easily by graphing than by substitution? 85) _____
- 86) $2x + 3y = -1$
 $4x + 2y = -3$
What number would you multiply the top equation by to eliminate the x terms? 86) _____
- 87) Explain how the multiplication and addition principles are used in solving systems of equations using the elimination method. 87) _____

Answer Key

Testname: UNTITLED5

- 1) A
- 2) B
- 3) B
- 4) A
- 5) A
- 6) A
- 7) A
- 8) A
- 9) B
- 10) D
- 11) B
- 12) D
- 13) C
- 14) D
- 15) B
- 16) D
- 17) D
- 18) C
- 19) C
- 20) D
- 21) D
- 22) D
- 23) D
- 24) A
- 25) C
- 26) B
- 27) D
- 28) B
- 29) D
- 30) D
- 31) D
- 32) B
- 33) B
- 34) C
- 35) A
- 36) C
- 37) D
- 38) D
- 39) D
- 40) C
- 41) D
- 42) B

Answer Key

Testname: UNTITLED5

43) A

44) B

45) B

46) C

47) A

48) A

49) C

50) D

51) A

52) D

53) A

54) C

55) D

56) D

57) C

58) B

59) C

60) C

61) A

62) A

63) A

64) A

65) C

66) C

67) C

68) C

69) A

70) B

71) A

72) B

73) B

74) D

75) D

76) B

77) D

78) D

79) D

80) C

81) C

82) Each point on the graph corresponds to an ordered pair that is a solution of the equation. The point of intersection of the graphs of two lines corresponds to an ordered pair that is a solution of both equations and, hence, a solution of a system of equations.

Answer Key

Testname: UNTITLED5

- 83) Parallel lines: no solution
The lines intersect in exactly one point: one solution
Equations have the same graph: an infinite number of solutions
- 84) The substitution method always yields an exact solution. It might also yield the solution more quickly than the graphing method, particularly when a variable is alone on one side of an equation in the system.
- 85) A system of equations would be solved more easily by graphing than by substitution when there are integer solutions and the substitution method requires extensive computations with fractions.
- 86) -2
- 87) The multiplication principle might be used to obtain a pair of terms that are opposites. The addition principle is used to eliminate a variable. Once a variable has been eliminated, the multiplication and addition principles are also used to solve for the remaining variable and, after a substitution, are used again to solve for the variable that was eliminated.