

1.  $2x + 3y = 13$   $(3, 2)$  and  $(2, 3)$

1.  $3x + 5y = 14$   $(1, 3)$  and  $(3, 1)$

1.  $x + 2y = 7$   $(1, 3)$  and  $(-1, -3)$

2.  $2x + 4y = -2$   $(3, -2)$  and  $(-3, 2)$

2.  $2x + y = -8$   $(5, -2)$  and  $(-5, 2)$

2.  $3x + 2y = -14$   $(-4, -1)$  and  $(-1, -4)$

3.  $y = 2x + 4$   $(-2, 1)$  and  $(-1, 2)$

3.  $y = 4x - 9$   $(-2, 1)$  and  $(2, -1)$

3.  $y = 3x + 5$   $(-1, -3)$  and  $(-2, -1)$

4.  $y = -3x - 8$   $(1, -11)$  and  $(1, -5)$

4.  $y = -5x + 8$   $(-1, 13)$  and  $(1, 3)$

4.  $y = -x - 5$   $(-4, -2)$  and  $(-2, -3)$

5.  $2x + 3y = 13, y = 2x - 1$  (2, 3)    5.  $3x + 5y = 14, y = 3x - 8$  (3, 1)    5.  $x + 2y = 7, y = x + 2$  (1, 3)

6.  $2x + 4y = -2, x = y + 5$  (3, -2)    6.  $2x + y = -8, x = y - 7$  (-5, 2)    6.  $3x + 2y = -14, x = 2y - 2$  (-4, -1)

7.  $y = 2x + 4, 2x - 3y = -8$  (-1, 2)    7.  $y = 4x - 9, 3x - 2y = 8$  (2, -1)    7.  $x - 2, y = 5, y = 3x + 5$  (-1, -3)

8.  $y = -3x - 8, y = 2x + 7$  (1, -1)    8.  $y = -5x + 8, y = 4x - 10$  (-1, 13)    8.  $y = -x - 5, y = 3x + 11$  (-4, -1)

# Solving systems by substitution

[37.1]

1.  $2x + 3y = 13, y = 2x - 1$

1.  $3x + 5y = 14, y = 3x - 8$

1.  $x + 2y = 7, y = x + 2$

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

2.  $2x + y = -8, x = y - 7$

2.  $3x + 2y = -14, x = 2y - 2$

## Solving systems by substitution

[37.2]

3.  $2x - 3y = -8, y = 2x + 4$

3.  $3x - 2y = 8, y = 4x - 9$

3.  $x - 2y = 5, y = 3x + 5$

4.  $y = -3x - 8, y = 2x + 7$

4.  $y = -5x + 8, y = 4x - 10$

4.  $y = -x - 5, y = 3x + 11$

## Solving systems by elimination

[38.1]

1.  $2x + 3y = 13, -2x + y = -1$

1.  $3x + 5y = 14, -3x + y = -8$

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

2.  $2x + 4y = -2, 4x - 4y = 20$

2.  $2x + y = -8, x - y = -7$

2.  $3x + 2y = -14, x - 2y = -2$

# Solving systems by elimination

[38.2]

3.  $2x + 3y = 13, -4x + 2y = -2$

3.  $3x + 5y = 14, -6x + 2y = -16$

3.  $3x + 6y = 21, -x + y = 2$

4.  $3x + 6y = -3, 4x - 4y = 20$

4.  $4x + 2y = -16, 3x - 3y = -21$

4.  $9x + 6y = 63, 5x - 10y = -5$

# Solving systems by elimination

[38.3]

5.  $3x + 2y = 1, x - 5y = 6$

5.  $3x + 2y = 10, x - 5y = 9$

5.  $3x + 2y = 8, x - 5y = 14$

6.  $3x - 2y = 14, 2x - 5y = 13$

6.  $3x - 2y = 19, 2x - 5y = 20$

6.  $3x - 2y = 6, 2x - 5y = -7$

## Convert to Standard Notation

1.  $1.5 \times 10^2$

1.  $5.25 \times 10^3$

1.  $8.125 \times 10^4$

2.  $1.5 \times 10^{-2}$

2.  $5.25 \times 10^{-3}$

2.  $8.125 \times 10^{-4}$

3.  $9.005 \times 10^1$

3.  $7.0075 \times 10^1$

3.  $5.9 \times 10^1$

4.  $9.005 \times 10^{-1}$

4.  $7.0075 \times 10^{-1}$

4.  $5.9 \times 10^{-1}$

## Convert to Scientific Notation

5. 13500

5. 456000

5. 8702000

6. 0.013500

6. 0.00456

6. 0.8702



Scientific Notation

[39.2]

7. 103500

7. 4005600

7. 80070250

8. 0.00105

8. 0.005006

8. 0.00001

Scientific Notation

Convert to Scientific Notation

9.  $900.5 \times 10^1$

9.  $70.075 \times 10^1$

9.  $590 \times 10^1$

10.  $900.5 \times 10^{-1}$

10.  $70.075 \times 10^{-1}$

10.  $590 \times 10^{-1}$

11.  $0.015 \times 10^2$

11.  $0.0525 \times 10^3$

11.  $0.8125 \times 10^4$

12.  $0.015 \times 10^{-2}$

12.  $0.0525 \times 10^{-3}$

12.  $0.8125 \times 10^{-4}$

13.  $(1.5 \times 10^2)(1.5 \times 10^3)$

13.  $(1.4 \times 10^3)(1.4 \times 10^4)$

13.  $(1.4 \times 10^1)(1.5 \times 10^4)$

14.  $(0.8 \times 10^3)(0.8 \times 10^{-4})$

14.  $(0.9 \times 10^2)(0.9 \times 10^{-5})$

14.  $(0.8 \times 10^1)(0.9 \times 10^{-4})$

15.  $(0.12 \times 10^{-2})(0.12 \times 10^{-3})$

15.  $(0.16 \times 10^{-1})(0.16 \times 10^{-2})$

15.  $(0.12 \times 10^{-1})(0.16 \times 10^{-3})$

16.  $(0.05 \times 10^6)(0.05 \times 10^{-3})$

16.  $(0.09 \times 10^5)(0.09 \times 10^{-2})$

16.  $(0.05 \times 10^6)(0.09 \times 10^{-2})$

Solve:

1. The distance varies directly with the speed. The distance traveled is 150 miles while the speed is 60 mph. What will the distance be if the speed is changed to 50 mph?

2. The area of a circle varies directly with its radius squared. The area is  $28.26 \text{ cm}^2$  while the radius is 3 cm. What would the area be if the radius was 2 cm?

1. The distance varies directly with the speed. The distance traveled is 300 miles while the speed is 50 mph. What will the distance be if the speed is changed to 60 mph?

2. The area of a circle varies directly with its radius squared. The area is  $12.56 \text{ cm}^2$  while the radius is 2 cm. What would the area be if the radius was 3 cm?

3. The price varies inversely with the demand.  
The price is \$250 while the demand is 100 orders.  
How many units will be in demand if the price is \$200?

3. The price varies inversely with the demand.  
The price is \$240 while the demand is 10 orders.  
How many units will be in demand if the price is \$200?

4. To preserve the volume of cone, the height must vary inversely with the radius squared. The height is 90 ft while the radius is 2 ft. What would the height be if the radius is 3 ft to preserve the volume?

4. To preserve the volume of cone, the height must vary inversely with the radius squared. The height is 10 inches while the radius is 3 inches. What would the height be if the radius is 6 inches to preserve the volume?

## Direct and Inverse Variation

[40.3]

5. The volume of a sphere varies directly with the radius cubed. The volume of the sphere is  $13.5 \text{ m}^3$  while the radius is  $1.5 \text{ m}$ . What would the volume be if the radius was  $1 \text{ m}$ ?

5. The volume of a sphere varies directly with the radius cubed. The volume of the sphere is  $32 \text{ m}^3$  while the radius is  $2 \text{ m}$ . What would the volume be if the radius was  $3 \text{ m}$ ?

6. To preserve the volume of a square prism, the height must vary inversely with the side length squared. The height is  $10 \text{ yards}$  while the side length is  $2 \text{ yards}$ . What would the height be if the side length was  $4 \text{ yards}$ ?

6. To preserve the volume of a square prism, the height must vary inversely with the side length squared. The height is  $90 \text{ yards}$  while the side length is  $1.5 \text{ yards}$ . What would the height be if the side length was  $3 \text{ yards}$ ?