

Mathematical

1. The area of a square is 144 square units. What is the length of one side of the square?

2. A rectangle has a length of 10 units and a width of 6 units. What is its perimeter?

3. A circle has a radius of 5 units. What is its circumference?

4. A right triangle has legs of length 3 and 4. What is the length of the hypotenuse?

5. A line passes through the points (1, 2) and (3, 8). What is the slope of the line?

6. A line passes through the points (2, 5) and (4, 1). What is the equation of the line in slope-intercept form?

7. A parabola opens upwards and has its vertex at (3, -2). It passes through the point (5, 2). What is the equation of the parabola in vertex form?

8. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 2x + 3y = 12 \\ x - y = 4 \end{cases}$$

9. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 3x - 2y = 6 \\ x + y = 5 \end{cases}$$

10. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 4x + 5y = 20 \\ 2x - 3y = 10 \end{cases}$$

11. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 5x - 4y = 10 \\ x + 2y = 8 \end{cases}$$

12. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 6x + 7y = 42 \\ 3x - 5y = 15 \end{cases}$$

13. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 7x - 8y = 14 \\ 4x + 6y = 24 \end{cases}$$

14. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 8x + 9y = 36 \\ 5x - 7y = 20 \end{cases}$$

15. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 9x - 10y = 18 \\ 6x + 8y = 24 \end{cases}$$

16. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 10x + 11y = 55 \\ 7x - 9y = 21 \end{cases}$$

17. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 11x - 12y = 22 \\ 8x + 10y = 40 \end{cases}$$

18. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 12x + 13y = 60 \\ 9x - 11y = 33 \end{cases}$$

19. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 13x - 14y = 26 \\ 10x + 12y = 60 \end{cases}$$

20. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 14x + 15y = 70 \\ 11x - 13y = 44 \end{cases}$$

21. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 15x - 16y = 30 \\ 12x + 14y = 84 \end{cases}$$

22. A system of two linear equations is given below. Solve for x and y.

$$\begin{cases} 16x + 17y = 96 \\ 13x - 15y = 65 \end{cases}$$

Algebra

1. Simplify the expression: $3x^2 + 5x - 2x^2 + 7x - 4$

2. Factor the expression: $x^2 - 9$

3. Factor the expression: $x^2 + 5x + 6$

4. Factor the expression: $x^2 - 4x + 4$

5. Factor the expression: $x^2 + 7x + 12$

6. Factor the expression: $x^2 - 10x + 25$

7. Factor the expression: $x^2 + 8x + 15$

8. Factor the expression: $x^2 - 16$

9. Factor the expression: $x^2 + 9x + 14$

10. Factor the expression: $x^2 - 25$

11. Factor the expression: $x^2 + 11x + 28$

12. Factor the expression: $x^2 - 49$

13. Factor the expression: $x^2 + 13x + 40$

14. Factor the expression: $x^2 - 36$

15. Factor the expression: $x^2 + 17x + 52$

16. Factor the expression: $x^2 - 81$

17. Factor the expression: $x^2 + 19x + 70$

18. Factor the expression: $x^2 - 100$

19. Factor the expression: $x^2 + 21x + 98$

20. Factor the expression: $x^2 - 144$

21. Factor the expression: $x^2 + 23x + 140$

22. Factor the expression: $x^2 - 225$

23. Factor the expression: $x^2 + 25x + 144$

24. Factor the expression: $x^2 - 400$

25. Factor the expression: $x^2 + 27x + 180$

26. Factor the expression: $x^2 - 625$

27. Factor the expression: $x^2 + 29x + 200$

28. Factor the expression: $x^2 - 900$

29. Factor the expression: $x^2 + 31x + 240$

30. Factor the expression: $x^2 - 1225$

31. Factor the expression: $x^2 + 33x + 264$

32. Factor the expression: $x^2 - 1600$

33. Factor the expression: $x^2 + 35x + 280$

34. Factor the expression: $x^2 - 196$

35. Factor the expression: $x^2 + 37x + 300$

36. Factor the expression: $x^2 - 2100$

37. Factor the expression: $x^2 + 39x + 360$

38. Factor the expression: $x^2 - 2500$

39. Factor the expression: $x^2 + 41x + 400$

40. Factor the expression: $x^2 - 3025$

41. Factor the expression: $x^2 + 43x + 440$

42. Factor the expression: $x^2 - 3600$

43. Factor the expression: $x^2 + 45x + 480$

44. Factor the expression: $x^2 - 4096$

45. Factor the expression: $x^2 + 47x + 520$

Geometry

1. A triangle has two sides of length 5 and 7. What is the range of possible lengths for the third side?

2. A rectangle has a length of 10 and a width of 6. What is its area?

3. A circle has a diameter of 10. What is its radius?

4. A right triangle has a hypotenuse of length 10. What is the length of the leg that is 6 units long?

5. A line segment has a length of 12. A point on the segment divides it into two parts. One part is 5 units long. What is the length of the other part?

6. A line segment has a length of 15. A point on the segment divides it into two parts. One part is 8 units long. What is the length of the other part?

7. A line segment has a length of 18. A point on the segment divides it into two parts. One part is 10 units long. What is the length of the other part?

8. A line segment has a length of 20. A point on the segment divides it into two parts. One part is 12 units long. What is the length of the other part?

9. A line segment has a length of 22. A point on the segment divides it into two parts. One part is 14 units long. What is the length of the other part?

10. A line segment has a length of 24. A point on the segment divides it into two parts. One part is 16 units long. What is the length of the other part?

11. A line segment has a length of 26. A point on the segment divides it into two parts. One part is 18 units long. What is the length of the other part?

12. A line segment has a length of 28. A point on the segment divides it into two parts. One part is 20 units long. What is the length of the other part?

13. A line segment has a length of 30. A point on the segment divides it into two parts. One part is 22 units long. What is the length of the other part?

14. A line segment has a length of 32. A point on the segment divides it into two parts. One part is 24 units long. What is the length of the other part?

15. A line segment has a length of 34. A point on the segment divides it into two parts. One part is 26 units long. What is the length of the other part?

16. A line segment has a length of 36. A point on the segment divides it into two parts. One part is 28 units long. What is the length of the other part?

17. A line segment has a length of 38. A point on the segment divides it into two parts. One part is 30 units long. What is the length of the other part?

18. A line segment has a length of 40. A point on the segment divides it into two parts. One part is 32 units long. What is the length of the other part?

19. A line segment has a length of 42. A point on the segment divides it into two parts. One part is 34 units long. What is the length of the other part?

20. A line segment has a length of 44. A point on the segment divides it into two parts. One part is 36 units long. What is the length of the other part?

21. A line segment has a length of 46. A point on the segment divides it into two parts. One part is 38 units long. What is the length of the other part?

22. A line segment has a length of 48. A point on the segment divides it into two parts. One part is 40 units long. What is the length of the other part?

23. A line segment has a length of 50. A point on the segment divides it into two parts. One part is 42 units long. What is the length of the other part?

24. A line segment has a length of 52. A point on the segment divides it into two parts. One part is 44 units long. What is the length of the other part?

25. A line segment has a length of 54. A point on the segment divides it into two parts. One part is 46 units long. What is the length of the other part?