PREALG: Basic Geometry

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Name: _____ Date: _____ Score: / 30

Learning Objectives

- Compute the perimeter of rectangles and polygons
- Compute the area of rectangles and triangles
- Identify and classify angles (acute, right, obtuse)
- Apply geometric formulas to real-world problems

Simplify each expression completely. Show all steps and circle your final answer.

Area of a rectangle

1. Find the area of a rectangle with length 13 ft and width 3 ft.

$l = 13,\ w = 3$

Answer: _____

2. A garden measures 5 meters long and 6 meters wide. How many square meters of soil are needed to cover it?

$l = 5,\ w = 6$

Answer: _____

3. A rectangular parking lot is 41 yards long and 26 yards wide. What is the area of the lot?

$l = 41,\ w = 26$

Answer: _____

4. Find the area of a rectangle with length 7 ft and width 2 ft.

$l = 7,\ w = 2$

Answer: _____

5. A garden measures 10 meters long and 9 meters wide. How many square meters of soil are needed to cover it?

$l = 10,\ w = 9$

Answer: _____

6. A rectangular parking lot is 23 yards long and 24 yards wide. What is the area of the lot?

$l = 23,\ w = 24$

Answer: _____

7. Find the area of a rectangle with length 12 ft and width 4 ft.

$l = 12,\ w = 4$

Answer: _____

8. A garden measures 18 meters long and 9 meters wide. How many square meters of soil are needed to cover it?

$l = 18,\ w = 9$

Answer: _____

9. A rectangular parking lot is 45 yards long and 13 yards wide. What is the area of the lot?

$l = 45,\ w = 13$

Answer: _____

Area of a triangle

10. Find the area of a triangle with base 10 cm and height 8 cm.

$b = 10,\ h = 8$

Answer: _____

11. Find the area of a triangle with base 5 m and height 9 m.

$b = 5,\ h = 9$

Answer: _____

12. A triangular sail has a base of 11 ft and a height of 5 ft. What is the area of the sail?

$b = 11,\ h = 5$

Answer: _____

13. Find the area of a triangle with base 4 cm and height 5 cm.

$b = 4,\ h = 5$

Answer: _____

14. Find the area of a triangle with base 12 m and height 3 m.

$b = 12,\ h = 3$

Answer: _____

15. A triangular sail has a base of 6 ft and a height of 9 ft. What is the area of the sail?

$b = 6,\ h = 9$

Answer: _____

16. Find the area of a triangle with base 14 cm and height 6 cm.

$b = 14,\ h = 6$

Answer: _____

17. Find the area of a triangle with base 5 m and height 7 m.

$b = 5,\ h = 7$

Answer: _____

18. A triangular sail has a base of 7 ft and a height of 5 ft. What is the area of the sail?

$b = 7,\ h = 5$

Answer: _____

Perimeter of a rectangle

19. Find the perimeter of a rectangle with length 13 cm and width 4 cm.

$l = 13,\ w = 4$

Answer: _____

20. A rectangular room is 9 feet long and 11 feet wide. How much baseboard trim (in feet) is needed to go around the entire room?

$l = 9,\ w = 11$

Answer: _____

21. Find the perimeter of a rectangle with length 9 cm and width 5 cm.

$l = 9,\ w = 5$

Answer: _____

22. A rectangular room is 11 feet long and 7 feet wide. How much baseboard trim (in feet) is needed to go around the entire room?

$l = 11,\ w = 7$

Answer: _____

23. Find the perimeter of a rectangle with length 17 cm and width 10 cm.

$l = 17,\ w = 10$

Answer: _____

24. A rectangular room is 18 feet long and 6 feet wide. How much baseboard trim (in feet) is needed to go around the entire room?

$l = 18,\ w = 6$

Answer: _____

Perimeter of a triangle

25. Find the perimeter of a triangle with sides 10 cm, 7 cm, and 8 cm.

$a = 10,\ b = 7,\ c = 8$

Answer: _____

26. A triangular garden has sides measuring 8 ft, 18 ft, and 13 ft. How many feet of fencing are needed to enclose it?

$a = 8,\ b = 18,\ c = 13$

Answer: _____

27. Find the perimeter of a triangle with sides 7 cm, 7 cm, and 12 cm.

$a = 7,\ b = 7,\ c = 12$

Answer: _____

28. A triangular garden has sides measuring 12 ft, 7 ft, and 13 ft. How many feet of fencing are needed to enclose it?

$a = 12,\ b = 7,\ c = 13$

Answer: _____

29. Find the perimeter of a triangle with sides 4 cm, 7 cm, and 14 cm.

$a = 4,\ b = 7,\ c = 14$

Answer: _____

30. A triangular garden has sides measuring 10 ft, 13 ft, and 14 ft. How many feet of fencing are needed to enclose it?

$a = 10,\ b = 13,\ c = 14$

Answer: _____

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ANSWER KEY & SOLUTIONS

Topics: Area of a rectangle, Perimeter of a triangle, Area of a triangle, Perimeter of a rectangle. All answers verified by independent computation.

Solutions

Area of a rectangle

1. Find the area of a rectangle with length 13 ft and width 3 ft.

$l = 13,\ w = 3$

→ *A = l x w = 13 x 3 = 39 sq ft.*

Answer: $A = 13 \times 3 = 39$

2. A garden measures 5 meters long and 6 meters wide. How many square meters of soil are needed to cover it?

$l = 5,\ w = 6$

→ *Area = 5 x 6 = 30 square meters.*

Answer: $A = 5 \times 6 = 30$

3. A rectangular parking lot is 41 yards long and 26 yards wide. What is the area of the lot?

$l = 41,\ w = 26$

→ *Area = length x width.*
→ *A = 41 x 26 = 1066 yd^2.*

Answer: $A = 41 \times 26 = 1066$

4. Find the area of a rectangle with length 7 ft and width 2 ft.

$l = 7,\ w = 2$

→ *A = l x w = 7 x 2 = 14 sq ft.*

Answer: $A = 7 \times 2 = 14$

5. A garden measures 10 meters long and 9 meters wide. How many square meters of soil are needed to cover it?

$l = 10,\ w = 9$

→ *Area = 10 x 9 = 90 square meters.*

Answer: $A = 10 \times 9 = 90$

6. A rectangular parking lot is 23 yards long and 24 yards wide. What is the area of the lot?

$l = 23,\ w = 24$

→ *Area = length x width.*
→ *A = 23 x 24 = 552 yd^2.*

Answer: $A = 23 \times 24 = 552$

7. Find the area of a rectangle with length 12 ft and width 4 ft.

$l = 12,\ w = 4$

→ *A = l x w = 12 x 4 = 48 sq ft.*

Answer: $A = 12 \times 4 = 48$

8. A garden measures 18 meters long and 9 meters wide. How many square meters of soil are needed to cover it?

$l = 18,\ w = 9$

→ *Area = 18 x 9 = 162 square meters.*

Answer: $A = 18 \times 9 = 162$

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9. A rectangular parking lot is 45 yards long and 13 yards wide. What is the area of the lot?

$l = 45,\ w = 13$

→ *Area = length x width.*
→ *A = 45 x 13 = 585 yd^2.*

Answer: $A = 45 \times 13 = 585$

Area of a triangle

10. Find the area of a triangle with base 10 cm and height 8 cm.

$b = 10,\ h = 8$

→ *A = (1/2) x base x height = (1/2) x 10 x 8 = 80/2 = 40 sq cm.*

Answer: $A = \frac{1}{2} \times 10 \times 8 = \frac{80}{2} = 40$

11. Find the area of a triangle with base 5 m and height 9 m.

$b = 5,\ h = 9$

→ *Formula: A = (1/2) x base x height.*
→ *A = (1/2) x 5 x 9 = 45/2 = 22 m^2.*

Answer: $A = \frac{1}{2} \times 5 \times 9 = \frac{45}{2} = 22$

12. A triangular sail has a base of 11 ft and a height of 5 ft. What is the area of the sail?

$b = 11,\ h = 5$

→ *A = (1/2) x base x height = (1/2) x 11 x 5.*
→ *A = 55/2 = 27 ft^2.*

Answer: $A = \frac{1}{2} \times 11 \times 5 = \frac{55}{2} = 27$

13. Find the area of a triangle with base 4 cm and height 5 cm.

$b = 4,\ h = 5$

→ *A = (1/2) x base x height = (1/2) x 4 x 5 = 20/2 = 10 sq cm.*

Answer: $A = \frac{1}{2} \times 4 \times 5 = \frac{20}{2} = 10$

14. Find the area of a triangle with base 12 m and height 3 m.

$b = 12,\ h = 3$

→ *Formula: A = (1/2) x base x height.*
→ *A = (1/2) x 12 x 3 = 36/2 = 18 m^2.*

Answer: $A = \frac{1}{2} \times 12 \times 3 = \frac{36}{2} = 18$

15. A triangular sail has a base of 6 ft and a height of 9 ft. What is the area of the sail?

$b = 6,\ h = 9$

→ *A = (1/2) x base x height = (1/2) x 6 x 9.*
→ *A = 54/2 = 27 ft^2.*

Answer: $A = \frac{1}{2} \times 6 \times 9 = \frac{54}{2} = 27$

16. Find the area of a triangle with base 14 cm and height 6 cm.

$b = 14,\ h = 6$

→ *A = (1/2) x base x height = (1/2) x 14 x 6 = 84/2 = 42 sq cm.*

Answer: $A = \frac{1}{2} \times 14 \times 6 = \frac{84}{2} = 42$

17. Find the area of a triangle with base 5 m and height 7 m.

$b = 5,\ h = 7$

→ *Formula: A = (1/2) x base x height.*
→ *A = (1/2) x 5 x 7 = 35/2 = 17 m^2.*

Answer: $A = \frac{1}{2} \times 5 \times 7 = \frac{35}{2} = 17$

18. A triangular sail has a base of 7 ft and a height of 5 ft. What is the area of the sail?

$b = 7,\ h = 5$

→ *A = (1/2) x base x height = (1/2) x 7 x 5.*
→ *A = 35/2 = 17 ft^2.*

Answer: $A = \frac{1}{2} \times 7 \times 5 = \frac{35}{2} = 17$

Perimeter of a rectangle

19. Find the perimeter of a rectangle with length 13 cm and width 4 cm.

$l = 13,\ w = 4$

→ *P = 2(l + w) = 2(13 + 4) = 2(17) = 34 cm.*

Answer: $P = 2(13 + 4) = 2(17) = 34$

20. A rectangular room is 9 feet long and 11 feet wide. How much baseboard trim (in feet) is needed to go around the entire room?

$l = 9,\ w = 11$

→ *Perimeter = 2(length + width).*
→ *P = 2(9 + 11) = 2(20) = 40 ft.*

Answer: $P = 2(9 + 11) = 2(20) = 40$

21. Find the perimeter of a rectangle with length 9 cm and width 5 cm.

$l = 9,\ w = 5$

→ *P = 2(l + w) = 2(9 + 5) = 2(14) = 28 cm.*

Answer: $P = 2(9 + 5) = 2(14) = 28$

22. A rectangular room is 11 feet long and 7 feet wide. How much baseboard trim (in feet) is needed to go around the entire room?

$l = 11,\ w = 7$

→ *Perimeter = 2(length + width).*
→ *P = 2(11 + 7) = 2(18) = 36 ft.*

Answer: $P = 2(11 + 7) = 2(18) = 36$

23. Find the perimeter of a rectangle with length 17 cm and width 10 cm.

$l = 17,\ w = 10$

→ *P = 2(l + w) = 2(17 + 10) = 2(27) = 54 cm.*

Answer: $P = 2(17 + 10) = 2(27) = 54$

24. A rectangular room is 18 feet long and 6 feet wide. How much baseboard trim (in feet) is needed to go around the entire room?

$l = 18,\ w = 6$

→ *Perimeter = 2(length + width).*
→ *P = 2(18 + 6) = 2(24) = 48 ft.*

Answer: $P = 2(18 + 6) = 2(24) = 48$

Perimeter of a triangle

25. Find the perimeter of a triangle with sides 10 cm, 7 cm, and 8 cm.

$a = 10,\ b = 7,\ c = 8$

→ *Perimeter = sum of all three sides.*
→ *P = 10 + 7 + 8 = 25 cm.*

Answer: $P = 10 + 7 + 8 = 25$

26. A triangular garden has sides measuring 8 ft, 18 ft, and 13 ft. How many feet of fencing are needed to enclose it?

$a = 8,\ b = 18,\ c = 13$

→ *Add all three sides: 8 + 18 + 13 = 39.*
→ *You need 39 ft of fencing.*

Answer: $P = 8 + 18 + 13 = 39$

27. Find the perimeter of a triangle with sides 7 cm, 7 cm, and 12 cm.

$a = 7,\ b = 7,\ c = 12$

→ *Perimeter = sum of all three sides.*
→ *P = 7 + 7 + 12 = 26 cm.*

Answer: $P = 7 + 7 + 12 = 26$

28. A triangular garden has sides measuring 12 ft, 7 ft, and 13 ft. How many feet of fencing are needed to enclose it?

$a = 12,\ b = 7,\ c = 13$

→ *Add all three sides: 12 + 7 + 13 = 32.*
→ *You need 32 ft of fencing.*

Answer: $P = 12 + 7 + 13 = 32$

29. Find the perimeter of a triangle with sides 4 cm, 7 cm, and 14 cm.

$a = 4,\ b = 7,\ c = 14$

→ *Perimeter = sum of all three sides.*
→ *P = 4 + 7 + 14 = 25 cm.*

Answer: $P = 4 + 7 + 14 = 25$

30. A triangular garden has sides measuring 10 ft, 13 ft, and 14 ft. How many feet of fencing are needed to enclose it?

$a = 10,\ b = 13,\ c = 14$

→ *Add all three sides: 10 + 13 + 14 = 37.*
→ *You need 37 ft of fencing.*

Answer: $P = 10 + 13 + 14 = 37$