

Grade 4 · Area and Perimeter of Rectangles · Worksheet Answer Key

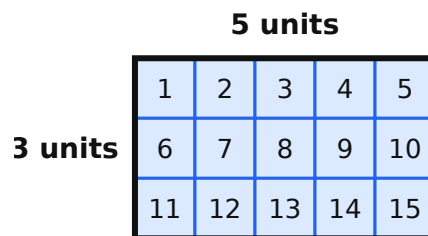
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This answer key gives a full worked solution for all 22 area and perimeter problems. Compare each step with your own work, and remember that area uses square units while perimeter uses plain units.

Grade 4 Common Core: 4.MD.A.3

Problem 1: Count unit squares

There are 3 rows with 5 squares in each row. Counting the squares gives 15, and $3 \times 5 = 15$.



Numbered squares.

15 square units

Problem 2: Area of rectangles

- a. $4 \times 6 = 24$ square feet
- b. $7 \times 3 = 21$ square inches
- c. $9 \times 5 = 45$ square meters
- d. $12 \times 8 = 96$ square yards

24 sq ft; 21 sq in; 45 sq m; 96 sq yd

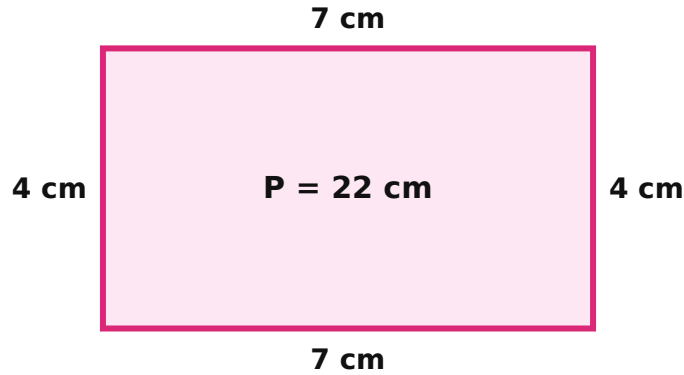
Problem 3: Perimeter of rectangles

- a. $2 \times 5 + 2 \times 3 = 10 + 6 = 16$ cm
- b. $2 \times 8 + 2 \times 2 = 16 + 4 = 20$ cm
- c. $2 \times 10 + 2 \times 6 = 20 + 12 = 32$ cm
- d. $2 \times 15 + 2 \times 9 = 30 + 18 = 48$ cm

16 cm; 20 cm; 32 cm; 48 cm

Problem 4: Add the four sides

$$7+4+7+4=22.$$



All four sides added.

22 cm

Problem 5: Squares

- a. Area: $6 \times 6 = 36$ sq in. Perimeter: $4 \times 6 = 24$ in.
- b. Area: $9 \times 9 = 81$ sq ft. Perimeter: $4 \times 9 = 36$ ft.
- c. Area: $12 \times 12 = 144$ sq m. Perimeter: $4 \times 12 = 48$ m.

36 sq in and 24 in; 81 sq ft and 36 ft; 144 sq m and 48 m

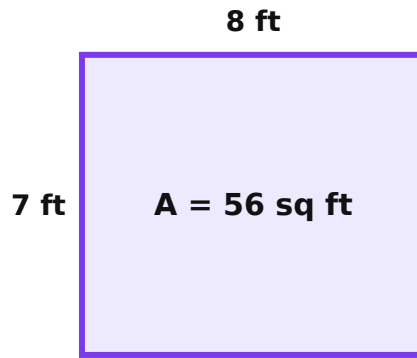
Problem 6: Area and perimeter together

- a. Area: $10 \times 4 = 40$ sq ft. Perimeter: $2 \times 10 + 2 \times 4 = 28$ ft.
- b. Area: $11 \times 5 = 55$ sq ft. Perimeter: $2 \times 11 + 2 \times 5 = 32$ ft.
- c. Area: $14 \times 6 = 84$ sq ft. Perimeter: $2 \times 14 + 2 \times 6 = 40$ ft.
- d. Area: $20 \times 8 = 160$ sq ft. Perimeter: $2 \times 20 + 2 \times 8 = 56$ ft.

40 sq ft and 28 ft; 55 sq ft and 32 ft; 84 sq ft and 40 ft; 160 sq ft and 56 ft

Problem 7: Missing side from area

- a. $56 \div 8 = 7$. Check: $7 \times 8 = 56$.
- b. $63 \div 9 = 7$. Check: $7 \times 9 = 63$.
- c. $120 \div 12 = 10$. Check: $10 \times 12 = 120$.
- d. $144 \div 16 = 9$. Check: $9 \times 16 = 144$.



Part (a): the width is 7 ft.

7; 7; 10; 9

Problem 8: Missing side from perimeter

- a. Half of 30 is 15. $15 - 9 = 6$ in.
- b. Half of 44 is 22. $22 - 14 = 8$ in.
- c. Half of 52 is 26. $26 - 10 = 16$ in.
- d. Half of 60 is 30. $30 - 20 = 10$ in.

6 in; 8 in; 16 in; 10 in

Problem 9: Rectangles with area 12

Find pairs of numbers that multiply to 12: 1×12 , 2×6 , 3×4 .

- a. $2 \times 1 + 2 \times 12 = 26$ units
- b. $2 \times 2 + 2 \times 6 = 16$ units
- c. $2 \times 3 + 2 \times 4 = 14$ units

1 by 12, 2 by 6, and 3 by 4. The 3 by 4 rectangle has the smallest perimeter, 14 units.

Problem 10: Compare two rectangles

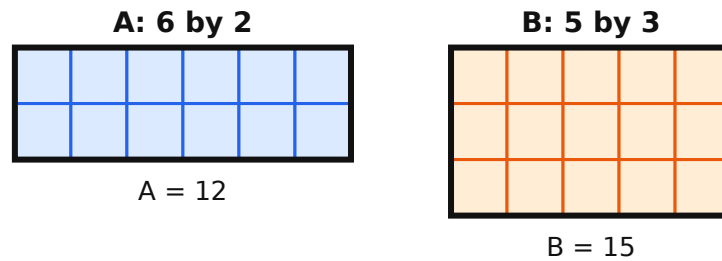
Area of A: $9 \times 4 = 36$ sq ft. Area of B: $7 \times 6 = 42$ sq ft.

Perimeter of A: $2 \times 9 + 2 \times 4 = 26$ ft. Perimeter of B: $2 \times 7 + 2 \times 6 = 26$ ft.

B has the greater area (42 sq ft against 36 sq ft). The perimeters are equal, 26 ft each.

Problem 11: Same perimeter

Area of A: $6 \times 2 = 12$. Area of B: $5 \times 3 = 15$. Difference: $15 - 12 = 3$.



Areas shown.

B has the greater area, by 3 square units.

Problem 12: Garden plan

Area: $12 \times 7 = 84$ sq ft.

Fence: $2 \times 12 + 2 \times 7 = 24 + 14 = 38$ ft.

84 sq ft of garden and 38 ft of fence.

Problem 13: Poster border

Paper: $18 \times 24 = 432$ sq in.

Ribbon: $2 \times 18 + 2 \times 24 = 36 + 48 = 84$ in.

432 sq in of paper and 84 in of ribbon.

Problem 14: Buying a rug

Area: $9 \times 6 = 54$ sq ft.

Cost: $54 \times \$4 = \$216$.

The rug costs \$216.

Problem 15: Laps around the field

One lap: $2 \times 100 + 2 \times 60 = 200 + 120 = 320$ yd.

Two laps: $2 \times 320 = 640$ yd.

Liam jogs 640 yards.

Problem 16: Bedroom floor

Length: $108 \div 9 = 12$ ft.

Perimeter: $2 \times 12 + 2 \times 9 = 24 + 18 = 42$ ft.

The room is 12 ft long, and the perimeter is 42 ft.

Problem 17: Dog pen fence

Fence needed: $2 \times 15 + 2 \times 10 = 30 + 20 = 50$ ft.

Cost: $50 \times \$3 = \$150$.

The fence costs \$150.

Problem 18: Floor tiles

Tiles needed: $14 \times 9 = 126$.

12 boxes hold $12 \times 10 = 120$ tiles, which is not enough. 13 boxes hold 130 tiles.

Diego must buy 13 boxes.

Problem 19: Bulletin board trim

Width: $54 \div 9 = 6$ ft.

Perimeter: $2 \times 9 + 2 \times 6 = 30$ ft.

Strips: $30 \div 5 = 6$.

6 strips are needed.

Problem 20: Doubling the length

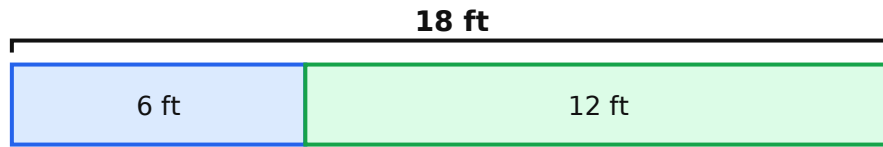
Old area: $8 \times 5 = 40$ sq ft. New length: 16 ft. New area: $16 \times 5 = 80$ sq ft.

Old perimeter: $2 \times 8 + 2 \times 5 = 26$ ft. New perimeter: $2 \times 16 + 2 \times 5 = 42$ ft.

The area doubles (40 to 80 sq ft), but the perimeter does not double (26 to 42 ft).

Problem 21: Length is twice the width

Half of 36 is 18. The tape has 3 equal parts, so one part is $18 \div 3 = 6$ ft.



Width 6 ft, length 12 ft.

Area: $12 \times 6 = 72$ sq ft. Check: $2 \times 12 + 2 \times 6 = 36$.

Width 6 ft, length 12 ft, area 72 sq ft.

Problem 22: Painting a wall

Wall: $12 \times 8 = 96$ sq ft. Door: $3 \times 7 = 21$ sq ft.

Paint: $96 - 21 = 75$ sq ft.

Noah paints 75 square feet.