

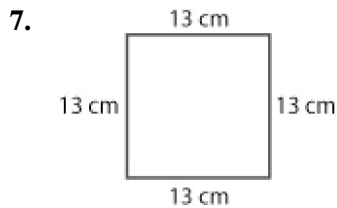
10-1 Perimeter - Practice and Problem Solving

5. **SIGNS** A typical *Do Not Enter* sign is 750 millimeters on each side. What is the perimeter of the sign?

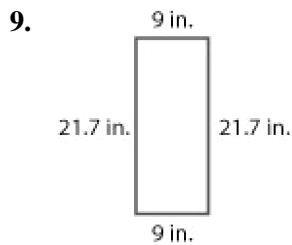


$$\begin{aligned}P &= 2l + 2w \\&= 2(750) + 2(750) \\&= 1,500 + 1,500 \\&= 3,000 \text{ mm}\end{aligned}$$

Find the perimeter of each square or rectangle.



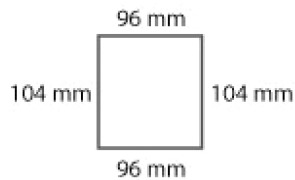
$$\begin{aligned}P &= 2l + 2w \\&= 2(13) + 2(13) \\&= 26 + 26 \\&= 52 \text{ cm}\end{aligned}$$



$$\begin{aligned}P &= 2l + 2w \\&= 2(21.7) + 2(9) \\&= 43.4 + 18 \\&= 61.4 \text{ in.}\end{aligned}$$

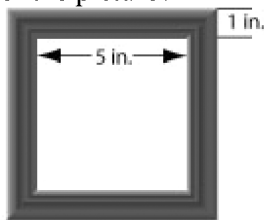
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11.



$$\begin{aligned} P &= 2\ell + 2w \\ &= 2(104) + 2(96) \\ &= 208 + 192 \\ &= 400 \text{ millimeters} \end{aligned}$$

13. **FRAMES** Nadia has a square picture frame that will hold a 5-inch by 5-inch photo. The picture frame has a border that is 1 inch thick all the way around. How much larger is the perimeter of the frame than the perimeter of the picture?



Find the perimeter of the picture.

$$\begin{aligned} P_p &= 2l + 2w \\ &= 2(5) + 2(5) \\ &= 20 \text{ in.} \end{aligned}$$

Each side of the frame is $5 + 1 + 1$ or 7 in.

Find the perimeter of the frame.

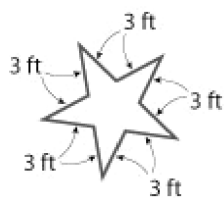
$$\begin{aligned} P_f &= 2l + 2w \\ &= 2(7) + 2(7) \\ &= 28 \text{ in.} \end{aligned}$$

Find the difference.

$$P_f - P_p = 28 \text{ in.} - 20 \text{ in.} \text{ or } 8 \text{ in.}$$

Find the perimeter of each figure.

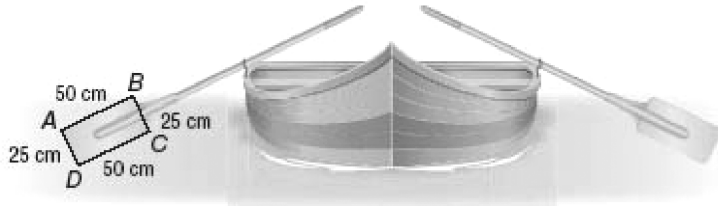
15.



$$\begin{aligned} P &= 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 + 3 \\ &= 10(3) \\ &= 30 \text{ feet} \end{aligned}$$

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17. **ROWING** The blades of the oars shown are quadrilaterals. What is the perimeter of quadrilateral $ABCD$?



$$P = 50 + 50 + 25 + 25$$

$$P = 150$$

19. **SEWING** A lace border on square pillows. The amount of lace needed for one pillow is $58\frac{1}{2}$ inches. What is the length of the pillow?

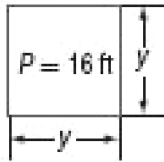
$$P = 58\frac{1}{2}$$

$$\ell = 58\frac{1}{2} \div 4$$

$$\ell = 14\frac{5}{8}$$

Find the value of y given the perimeter P .

21.



$$1 \text{ top} + 1 \text{ bottom} + 1 \text{ left side} + 1 \text{ right side} \\ = 4y \text{ units}$$

$$\text{So } (4)y = 16$$

$$16 \div 4 = 4$$

$$y = 4 \text{ ft}$$

23. **REASONING** Are two rectangles with equal perimeters always congruent? Explain your reasoning.

No; a 4 by 2 rectangle and a 5 by 1 rectangle both have a perimeter of 12 units

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25. **CHALLENGE** Find and compare the perimeters of the rectangles whose dimensions are listed in the table. Then create another set of at least three rectangles that share a similar relationship.

Length (ft)	Width (ft)
6	1
5	2
4	3

Length (ft)	Width (ft)	$2l + 2w$	P (ft)
6	1	$2(6) + 2(1)$	14
5	2	$2(5) + 2(2)$	14
4	3	$2(4) + 2(3)$	14

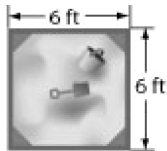
Each rectangle has the same perimeter, 14 ft.

Sample answer:

1 ft by 9 ft, 2 ft by 8 ft, and 3 ft by 7 ft.

Each has a perimeter of 20 ft.

27. Mr. Johnson is building a bottomless square sandbox using cedar wood.



Which method can Mr. Johnson use to find the amount of cedar needed to build the sandbox?

- A Multiply the length of a side by 2.
- B Multiply the length of a side by 4.
- C Square the length of a side.
- D Multiply the length of each side by 2 and add the result.

The perimeter of a square is 4 times the length of a side. The answer is B.

Tell whether each pair of figures is *congruent*, *similar*, or *neither*.



The figure on the right is a smaller version of the figure on the left. So, they are similar.



The figures are the same so they are congruent.

Estimate each percent.

33. 31% of 157

$\frac{3}{10}$ of 160 is 48.

31% of 157 is about 48.

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35. 33% of 92

$\frac{1}{3}$ of 90 is 30.

33% of 92 is about 30.

PREREQUISITE SKILL Round each number to the nearest tenth.

37. 43.363

43.4

39. 37.6219

37.6