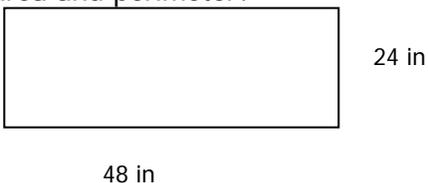


3-4-4 Rectangles

To solve questions involving geometric shapes first draw a picture, then use formulas or common sense.

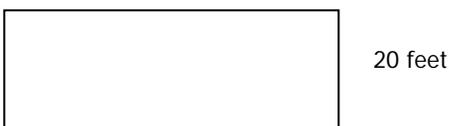
A rectangle's perimeter is found by adding all the sides. Most of these questions can be solved using common sense; however, these questions are also a good way to practice two step equations.

Example 1: My table is 24 in by 48 in. What is the area and perimeter?



My table is 144in. around the outside and 1152 sq. in. in area. Don't forget the units in the answer.

Example 2: A garden is to be fenced with 100 feet of fencing. One length of the garden is dictated by the distance to the neighbor's yard. The garden will be 20 feet wide. How long will it be? What is the area?



l 's length.

The garden is to be 30 feet long. Reread the question. It also asks for area.

Example 3: Jan's art teacher told her to make a frame with the length three times the width. The perimeter is 144 inches. What are the dimensions and area of the picture?



$3w$

The picture is 18in by 54 in. The area is 972 sq. in.

Perimeter

First draw and label a picture (rectangle).

Second choose a formula. $P=2l+2w$

Fill in the known values. $P=2(48)+2(24)$

Simplify. $P=96+48$

Solve. $P=144$ in.

Area

New Formula $A= lw = 48(24)=1152$ sq. in.

Perimeter

First draw and label a picture (rectangle).

Second choose a formula. $P=2l+2w$

Fill in the known values. $100=2l+2(20)$

Simplify. $100=2l+40$

Solve. $-40 \quad -40$

$$60 = 2l$$

Area

New Formula $A= lw =$

$30(20)=600$ sq. ft.

$$\frac{60}{2} = \frac{2l}{2}$$

$$30 = l$$

Perimeter

First draw and label a picture (rectangle).

Second choose a formula. $P=2l+2w$

Fill in the known values. $144=2l+2w \quad l=3w$

Simplify. $144=2(3w)+2w$

Solve. $144=6w+2w$

$$144 = 8w$$

Area

New Formula $A= lw =$

$54(18)=972$ sq. in.

$$\frac{144}{8} = \frac{8w}{8}$$

$$18 = w$$

$$l = 3w = 3(18) = 54$$

Practice. Do the fraction arithmetic long hand for the practice.

a) Find the area and perimeter of a field 509 yards by 345 yards.

A card is $3\frac{1}{2} \times 5\frac{3}{4}$ inches. What is the area and perimeter?

b) How many squash hills will fit in a garden area $12\frac{2}{3}$ by $15\frac{1}{2}$ feet? One hill requires 4 sq. ft. Marigolds will be planted around the edge of the garden, one plant every 6 inches. How many marigolds are needed?

The length of a flower bed is 5.3 meters. The width is $\frac{3}{4}$ ths of the length. Find the length of fencing needed. If a bag of fertilizer covers 3 square meters, how many bags should be bought?

c) A dance floor is 35 feet by 60 feet. The floor finish covers 8000 ft² per gallon. How many times can the floor be done with one gallon? How many chairs 1.5 ft wide will fit around the outside of the floor?

Several boxes are to be wrapped. Each is 15 inches by 12 inches by 4 inches. How much wrapping paper is needed for one box? How much ribbon to wrap the longest way around? Hint: a box has 6 sides.

d) A rug covers 72 square feet. What are some possible dimensions? Are the perimeters all the same for these dimensions?

A 7-room house averages 150 sq. ft per room. If the house is 50 feet long, what is the approximate perimeter?

e) There are 255 inches of trim available for a rectangular project. If one side must be 25 inches, what is the area of the project?

The perimeter of a window is 24 feet. One side is 3 feet. What is the area?

f) One field is 3 times as long as it is wide. The fence is 1200 meters around. What is the area?

My bookmark is 5 times as long as it is wide. The decorative edge is 36 cm around. What is the area of the bookmark?

g) The perimeter of a tray is 160 inches. If the length is $3\frac{1}{2}$ times as long as the width what is the area of the tray?

The sign is 2.5 times as tall as it is wide. The perimeter is 29.4 cm. What is the area of the sign?

h) The area of a rectangle that is 32 in² and has one side twice as long as the other. What is the perimeter?

A rectangle is 7 times as long as it is wide. The area is 63 sq ft. What is the perimeter?