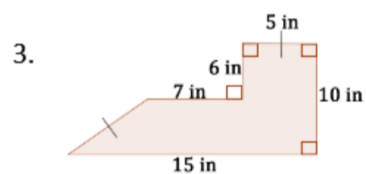
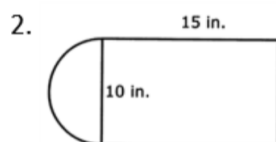
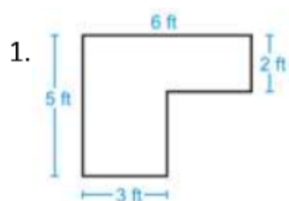


Bell Ringer

8.1 Perimeter and Area

Find the perimeter and area of each figure.



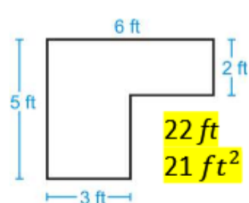
4. If $f(x) = 2x + 3$ and $g(x) = x - 5$, find $(f + g)(x)$

Solutions

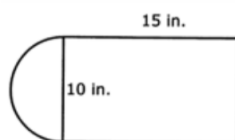
8.1 Perimeter and Area

Find the perimeter and area of each figure.

1.

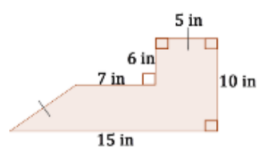


2.



55.7 in
189.3 in²

3.



48 in
84 in²

4. If $f(x) = 2x + 3$ and $g(x) = x - 5$, find $(f + g)(x)$ $3x - 2$

due tomorrow:

hw 8.1 #s 2-10 evens, 11-15, 19-22, 31, 37, 38

pg 439

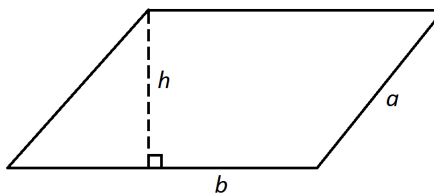
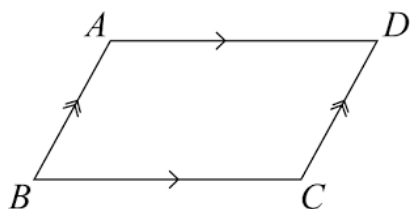


Objective To find the area of parallelograms and triangles

p439

Describe a parallelogram

How do you find the area of a parallelogram???

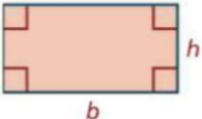


pg 439

take note

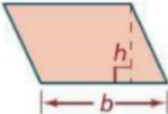
Key Concept Area of a Rectangle

The area of a rectangle is the product of its base and height.

$$A = bh$$


Key Concept Area of a Parallelogram

The area of a parallelogram is the product of a base and the corresponding height.

$$A = bh$$


base = any side

height = side perpendicular to base

height - altitude

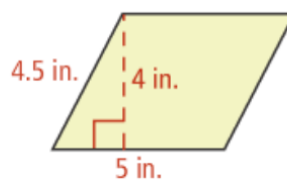


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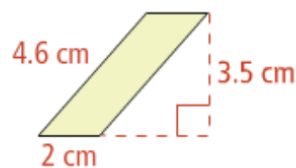


Problem 1 Finding the Area of a Parallelogram

A What is the area of the parallelogram?



B What is the area of the parallelogram?



solutions

**Problem 1** Finding the Area of a Parallelogram**A** What is the area of the parallelogram?

Write the formula for the area of a parallelogram.

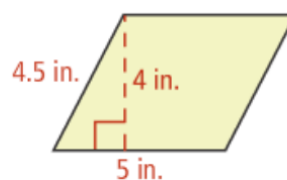
$$A = bh$$

Substitute 5 for b and 4 for h .

$$= 5(4)$$

Simplify.

$$= 20$$

The area is 20 in.^2 .**B** What is the area of the parallelogram?

Write the formula for the area of a parallelogram.

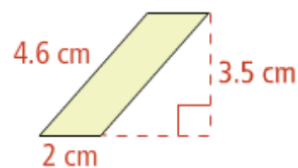
$$A = bh$$

Substitute 2 for b and 3.5 for h .

$$= 2(3.5)$$

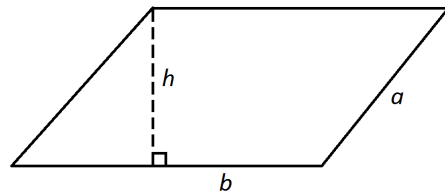
Simplify.

$$= 7$$

The area is 7 cm^2 .

got it pg 440

Got It? What is the area of a parallelogram with base length 12 m and height 9 m?

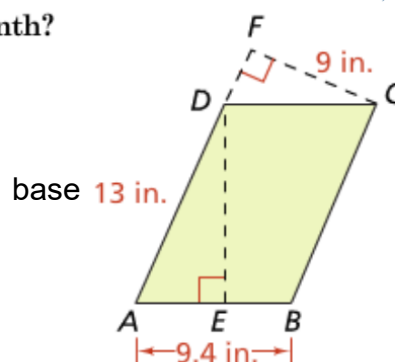




Problem 2 Finding a Missing Dimension

not in book

For $\square ABCD$, what is DE to the nearest tenth?



solution



Problem 2 Finding a Missing Dimension

For $\square ABCD$, what is DE to the nearest tenth?

First, find the area of $\square ABCD$.

Use the formula for area of a parallelogram.

Use base AD and height CF .

Simplify.

$$\begin{aligned} A &= bh \\ &= 13(9) \\ &= 117 \end{aligned}$$

The area of $\square ABCD$ is 117 in.^2 .

Now use the area formula a second time to find DE .

Use the formula for area of a parallelogram.

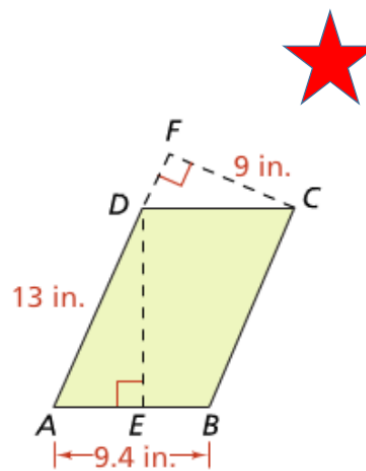
Use base AB and height DE .

Divide each side by 9.4 .

Simplify.

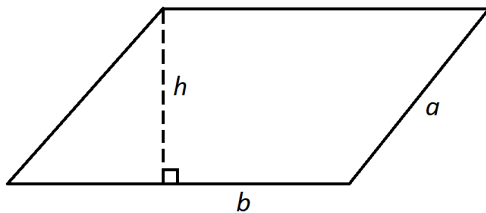
$$\begin{aligned} A &= bh \\ 117 &= 9.4(DE) \\ \frac{117}{9.4} &= \frac{9.4(DE)}{9.4} \\ 12.4 &\approx DE \end{aligned}$$

DE is about 12.4 in.



got it pg 440

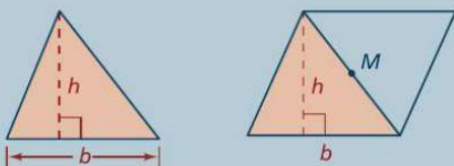
Got It? A parallelogram has sides of length 15 cm and 18 cm. The height corresponding to a 15-cm base is 9 cm. What is the height corresponding to an 18-cm base?



p440

pg 441

You can rotate a triangle about the midpoint of a side to form a parallelogram.



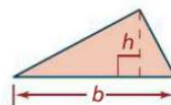
The area of the triangle is half the area of the parallelogram.

Take note

Key Concept Area of a Triangle

The area of a triangle is half the product of a base and the corresponding height.

$$A = \frac{1}{2}bh$$



A **base of a triangle** can be any of its sides. The corresponding **height** is the length of the altitude to the line containing that base.

p441

not in book



Problem 3 Finding the Area of a Triangle

Sailing You want to make a triangular sail like the one at the right. How many square feet of material do you need?



solution

**Problem 3** Finding the Area of a Triangle

Sailing You want to make a triangular sail like the one at the right. How many square feet of material do you need?

Step 1 Convert the dimensions of the sail to inches.

Step 2 Find the area of the triangle.

$$A = 11,680 \text{ in.}^2$$

Step 3 Convert $11,680 \text{ in.}^2$ to square feet.

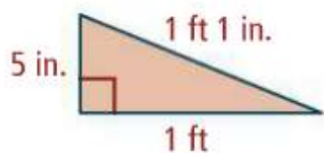
$$11,680 \text{ in.}^2 \cdot \frac{1 \text{ ft}}{12 \text{ in.}} \cdot \frac{1 \text{ ft}}{12 \text{ in.}} = 81\frac{1}{9} \text{ ft}^2$$

You need $81\frac{1}{9} \text{ ft}^2$ of material.



got it pg 442

Got It? What is the area of the triangle?



Think
In what units should your final answer be written?

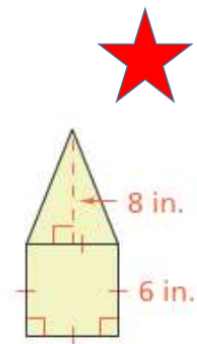
p442

not in book



Problem 4 Finding the Area of an Irregular Figure

What is the area of the figure at the right?



solution

**Problem 4** Finding the Area of an Irregular Figure

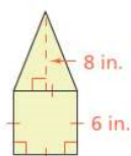
What is the area of the figure at the right?

Find the area of each part of the figure.

$$\text{triangle area} = \frac{1}{2}bh = \frac{1}{2}(6)8 = 24 \text{ in.}^2$$

$$\text{square area} = bh = 6(6) = 36 \text{ in.}^2$$

$$\text{area of the figure} = 24 \text{ in.}^2 + 36 \text{ in.}^2 = 60 \text{ in.}^2$$



Plan

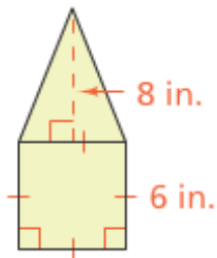
How do you know the length of the base of the triangle?

The lower part of the figure is a square. The base length of the triangle is the same as the base length of the square.



got it pg 442

Got It? Reasoning Suppose the base lengths of the square and triangle in Problem 4 are doubled to 12 in., but the height of each polygon remains the same. How is the area of the figure affected?



p442

due Monday

hw 8.2 #s 8-12, 14-17, 21-27 odds, 36-40 evens

