

1) BEDMAS - $32 \div 8 \times 2$



πr^2

2) Circumference if $d = 4\text{cm}$ (Est.)

πd
 3×4
 12cm

3) $\frac{1}{3}$ of $21 = 7$

4) $250 \div 10 = 25$

5) 20% of $20 = 4$

6) $8004 \div 4 = 2001$

7) $0.10 \times 40 = 4.0$
 10% of 40

*8) radius = 2cm
 what is the Area
 (Est.) 3×2
 3×4
 12cm^2

9) 10% of $327 = 32.7$
 0.10×327

10) LCD of 5 and 10
 10

4.3

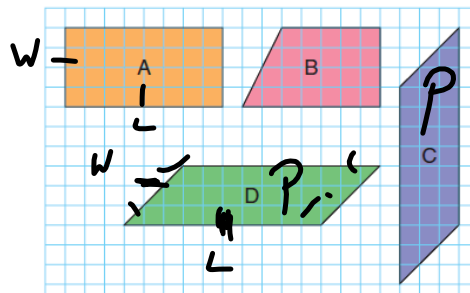
Area of a Parallelogram

Focus

Develop a formula to find the area of a parallelogram.

Which of these shapes are parallelograms?
How do you know?

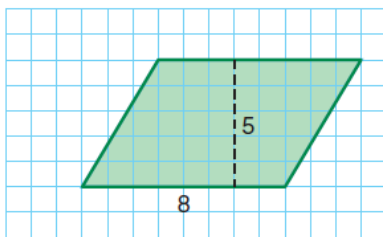
How are Shapes C and D alike?
How are they different?



4 sides

Connect

To estimate the area of this parallelogram, count the whole squares and the part squares that are one-half or greater.

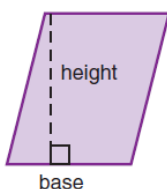


There are:

- 33 whole squares
- 8 part squares that are one-half or greater

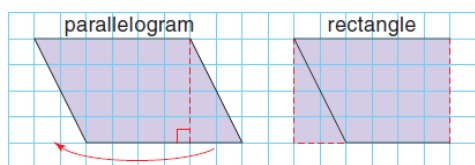
The area of this parallelogram is about 41 square units.

Any side of a parallelogram is a **base** of the parallelogram. The **height** of a parallelogram is the length of a line segment that joins parallel sides and is perpendicular to the base.



Recall that both a rectangle and a square are parallelograms.

Any parallelogram that is not a rectangle can be "cut" and rearranged to form a rectangle. Here is one way to do this.

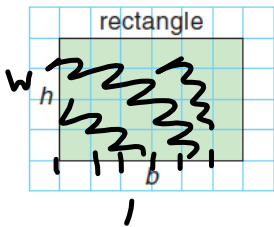


The parallelogram and the rectangle have the same area.

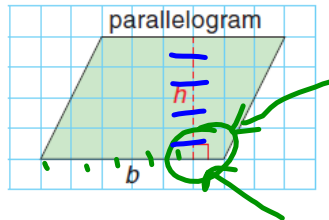
The parallelogram and the rectangle have the same area.

The area of a parallelogram is equal to the area of a rectangle with the same height and base.

To find the area of a parallelogram, multiply the base by the height.



Area of rectangle:
 $A = bh$



Area of parallelogram:
 $A = bh$

b represents the base.
 h represents the height.

$$A = bh$$

$$= 6(4)$$

$$= 24 \text{ units}^2$$

$$A = bh$$

$$= 4(6)$$

$$= 24 \text{ units}^2$$

$$A = \text{base} \times \text{height}$$

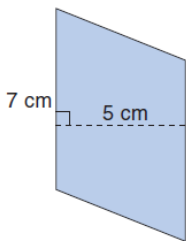
$$= 6 \times 4$$

$$= 24 \text{ units}^2$$

Example

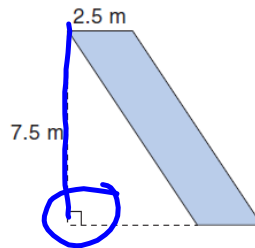
Calculate the area of each parallelogram.

a)



$$\begin{aligned}
 A &= bh \\
 &= 7(5) \\
 &= 35 \text{ cm}^2
 \end{aligned}$$

b)



The height can be drawn outside the parallelogram.

$$\begin{aligned}
 A &= bh \\
 &= (2.5) 7.5 \\
 &= 18.75 \text{ m}^2
 \end{aligned}$$

A Solution

The area of a parallelogram is given by the formula $A = bh$.

a) $A = bh$

Substitute: $b = 7$ and $h = 5$

$$A = 7 \times 5$$

$$= 35$$

The area of the parallelogram is 35 cm^2 .

b) $A = bh$

Substitute: $b = 2.5$ and $h = 7.5$

$$A = 2.5 \times 7.5$$

$$= 18.75$$

The area of the parallelogram is 18.75 m^2 .

3²

3

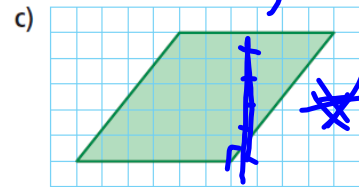
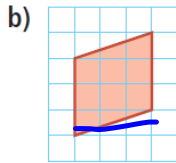
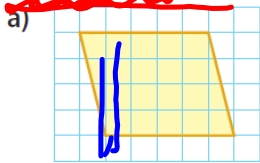
Practice

P. 141

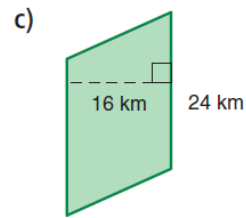
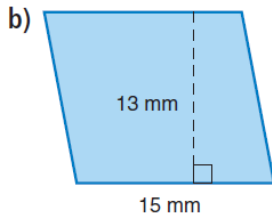
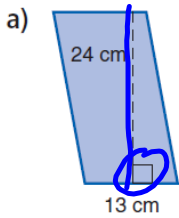
Height - ALWAYS

come out of your 90° angle

1. i) Copy each parallelogram on 1-cm grid paper.
- ii) Show how the parallelogram can be rearranged to form a rectangle
- iii) Estimate, then find, the area of each parallelogram.



2. Find the area of each parallelogram.



$$\begin{aligned}
 A &= bh \\
 &= 13(24) \\
 &= 312 \text{ cm}^2
 \end{aligned}$$

3. a) On 1-cm grid paper, draw 3 different parallelograms with base 3 cm and height 7 cm.
b) Find the area of each parallelogram you drew in part a. What do you notice?

p. 141 - questions 1-3

p. 142 - questions 5, 6, 9, 10

* Draw your parallelogram EXACT time
with your formula!!!

$$6^2 \times \sqrt{\quad}$$
$$6 \text{ cm} \times \sqrt{\quad}$$