

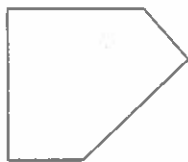
Investigating Polygons



Quick Review

- A polygon is a closed shape with sides that are straight line segments. Exactly 2 sides meet at each vertex. The sides intersect only at the vertices.

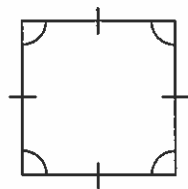
This shape is a polygon.



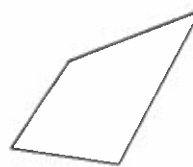
These shapes are **non-polygons**.



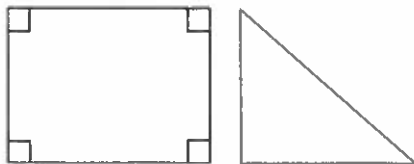
- A **regular polygon** has all sides and all angles equal. It also has line symmetry.



An **irregular polygon** does not have all sides equal and all angles equal.



- A **convex polygon** has all angles less than 180° .

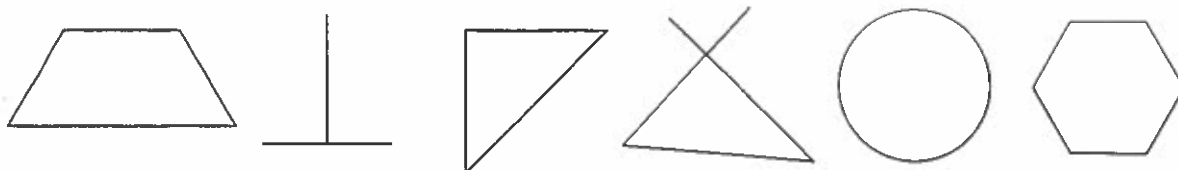


A **concave polygon** has at least one angle greater than 180° .



Try These

1. Circle each polygon.

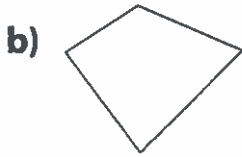


Practice

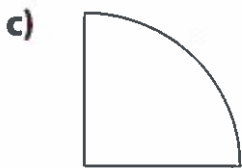
1. Match each shape to its description.



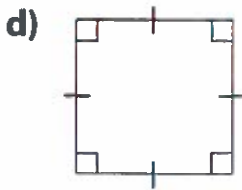
regular polygon



non-polygon

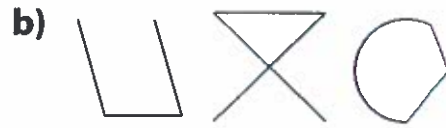


concave quadrilateral



convex quadrilateral

2. Draw a different shape that belongs in each set.



Stretch Your Thinking

Complete each polygon.

a) a convex polygon



b) a concave polygon



c) a regular polygon



Perimeters of Polygons



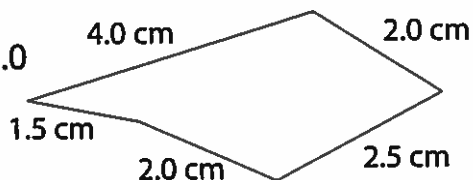
Quick Review

- We can find the perimeter of any polygon by adding the side lengths.

For this pentagon:

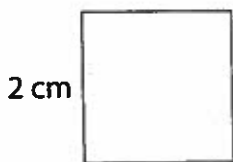
$$\begin{aligned} \text{Perimeter} &= 4.0 + 1.5 + 2.0 + 2.5 + 2.0 \\ &= 12 \end{aligned}$$

The perimeter is 12 cm.



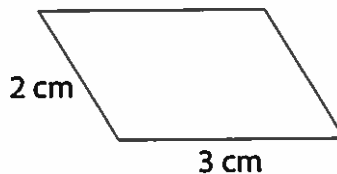
- We can use a formula to find the perimeter of some polygons.

Square



$$\begin{aligned} P &= s \times 4 \\ P &= 2 \times 4 \\ &= 8 \end{aligned}$$

Parallelogram



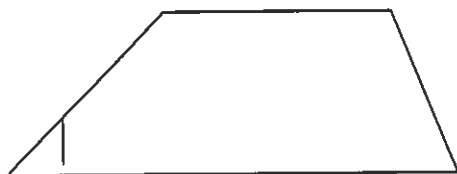
$$\begin{aligned} P &= 2 \times (\ell + s) \\ P &= 2 \times (3 + 2) \\ &= 2 \times 5 \\ &= 10 \end{aligned}$$

The perimeters of the polygons are 8 cm and 10 cm.

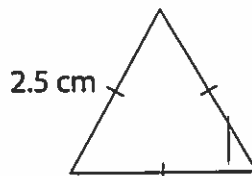
Try These

- Find the perimeter of each polygon.

a)

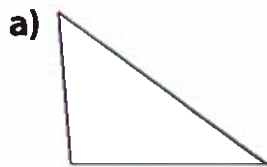


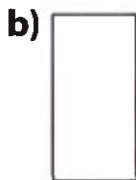
b)



Practice

1. Find the perimeter of each polygon.







2. Kerry skates laps around the playground.

The playground is 150 m long and 50 m wide.

How many laps will it take Kerry to skate 1 km? _____

3. The perimeter of an equilateral triangle is 5.1 m. How long are its sides?

Give your answer in as many different units as you can.

4. The perimeter of an atlas is 1.4 m.

How long might each side be? _____

5. Suppose the side lengths of a rectangle are halved.

What would happen to the perimeter?

Stretch Your Thinking

One side of Kirby's rectangular garden measures 5 m.

The perimeter of the garden is 27 m.

Draw a sketch of Kirby's garden.

Label the side lengths.

NAME: _____

DATE: _____

Why was the student driver lying face down on the street?



Solve the following problems and match your answers to the answers in the Legend. Then record the corresponding letter of the correct answer in the rectangles at the bottom of page 2 to answer the riddle.
Note: The problem numbers match the numbered rectangles.

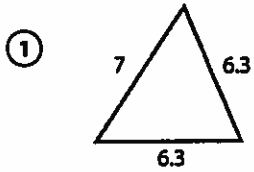
| | | | | |
|-----------------|----------------|----------------|----------------|----------------|
| P 25 | E 33.04 | I 47.1 | K 40 | M 30 |
| Y 41.01 | C 19.6 | D 206.6 | U 37.6 | R 29.46 |
| O 177.56 | S 72.96 | L 35.82 | H 97.26 | |
| N 22.64 | A 20 | T 120 | | |

LEGEND

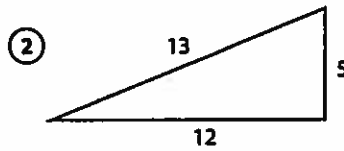
PAGE 1 of 2



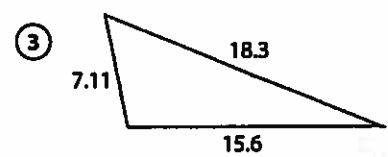
Find the perimeter of the figures:



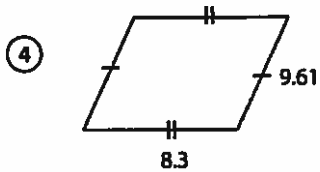
Perimeter = _____



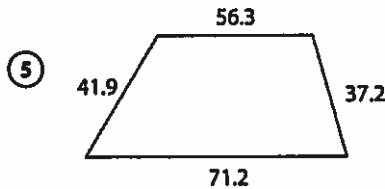
Perimeter = _____



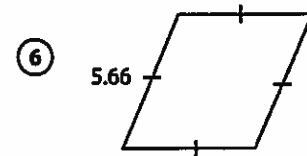
Perimeter = _____



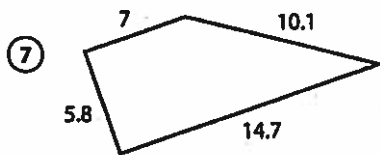
Perimeter = _____



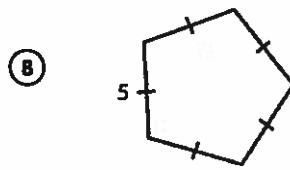
Perimeter = _____



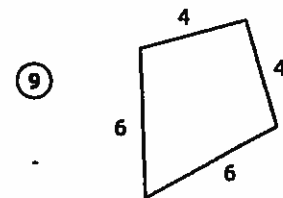
Perimeter = _____



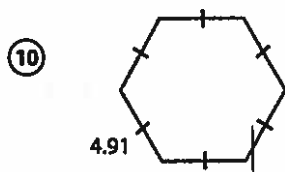
Perimeter = _____



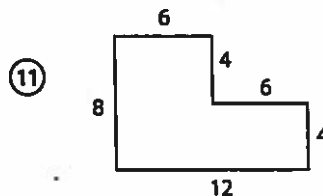
Perimeter = _____



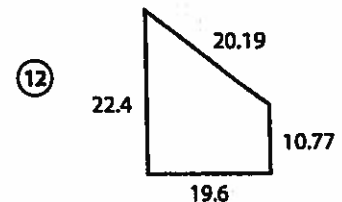
Perimeter = _____



Perimeter = _____



Perimeter = _____



Perimeter = _____

NAME: _____

DATE: _____

Why was the student driver lying face down on the street?



PAGE 2 of 2

13 A parallelogram has 2 sides measuring 14.9 units and 2 measuring 33.73 units. What is its perimeter?

14 A rhombus has sides measuring 44.39 units. What is its perimeter?

15 The sign for David's Denim Jeans is an equilateral triangle. The bottom side of the triangle measures 15.7 units. What is the sign's perimeter?

16 An octagon's sides each measure 4.13 units. What is its perimeter?

17 Julie cut a piece of wood into a dodecagon as part of a craft project. Each side measured 10 units. She plans to glue ribbon on the outside along the perimeter of the dodecagon. How many units of ribbon does she need?



13 15 12



15 6 12 17 10 7 1 17 14 10



17 14 4 5



13 15 2



17 14



11 16 16 8



13 15 12



16 3 16 12



14 6



17 13 16



10 14 9 5

Skill: Finding the perimeter of figures (page 2)

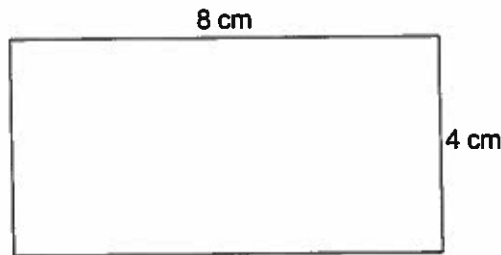
Area of a Rectangle



Quick Review

Here is one way to find the area of a rectangle.

- Multiply the length by the width.
 $8 \times 4 = 32$
 So, the area of the rectangle is 32 cm^2 .

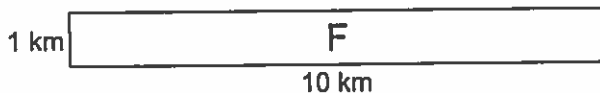
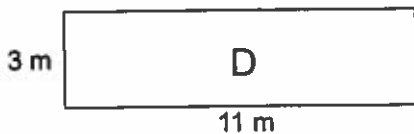
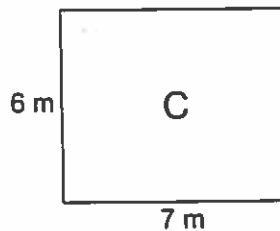
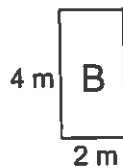
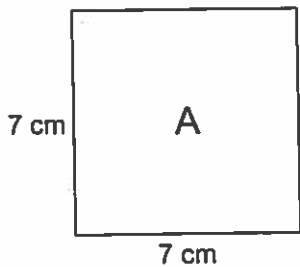


Rule: To find the area of a rectangle, multiply the length by the width.

Formula: $\text{Area} = \text{length} \times \text{width}$
 $A = \ell \times w$

Try These

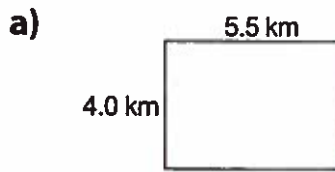
Find the area of each rectangle.
 Complete the chart.



| Figure | Area |
|--------|------|
| A | |
| B | |
| C | |
| D | |
| E | |
| F | |

Practice

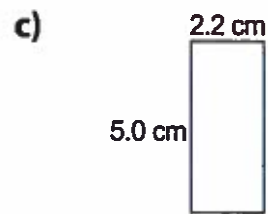
1. Find the area of each rectangle.



Area = _____



Area = _____



Area = _____

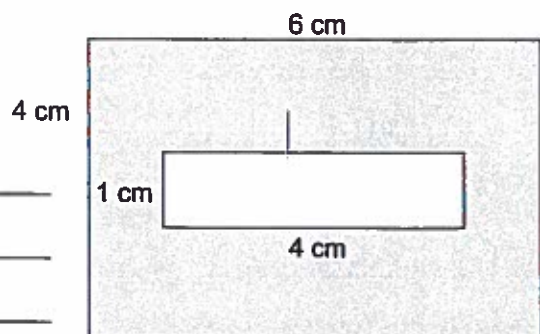
2. Measure the length and width of each object to the nearest unit. Use these dimensions to find the area. Record your work in the chart.

| Object | Length | Width | Area |
|------------------------|--------|-------|------|
| a tabletop | | | |
| the classroom floor | | | |
| a sheet of paper | | | |
| a page from a magazine | | | |

3. Draw a rectangle with an area of 12 cm^2 . Label the side lengths.

Stretch Your Thinking

Find the area of the shaded part of the rectangle. Show all your work.



NAME: _____

DATE: _____

What kind of comb do bears like best?

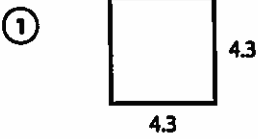


Solve the following problems and match your answers to the answers in the Legend. Then record the corresponding letter of the correct answer in the rectangles at the bottom to answer the riddle.
Note: The problem numbers match the numbered rectangles.

- | | | | | |
|-----------------|------------------|----------------|----------------|-----------------|
| H 24.99 | L 51.6 | B 234 | O 100 | S 0.1323 |
| M 12.036 | E 1210 | U 13.77 | F 18.49 | |
| N 80 | R 25.3009 | Y 7992 | C 76 | |

LEGEND →

Find the area of each square or rectangle. Assume all answers to be units squared.



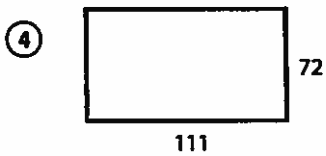
Area = _____



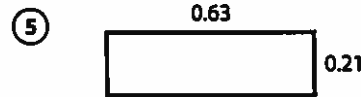
Area = _____



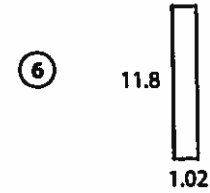
Area = _____



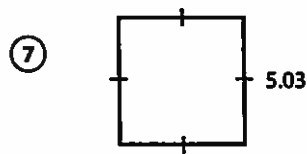
Area = _____



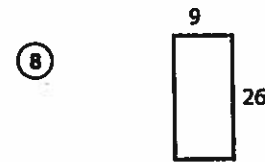
Area = _____



Area = _____



Area = _____



Area = _____

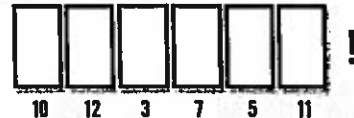
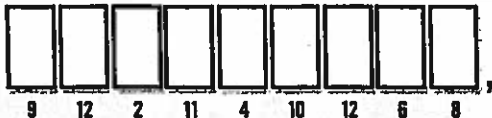


Area = _____

⑩ A garden plot measures 8 feet by 9.5 feet. What is the area of the garden?
 _____ ft²

⑪ A quilt is made up of 10 squares each measuring 11 inches on each side. What is the total area of the quilt in square inches? _____

⑫ One room measures 9 feet by 11 feet. Another measures 10 feet by 10 feet. What is the area of the larger room?
 _____ ft²

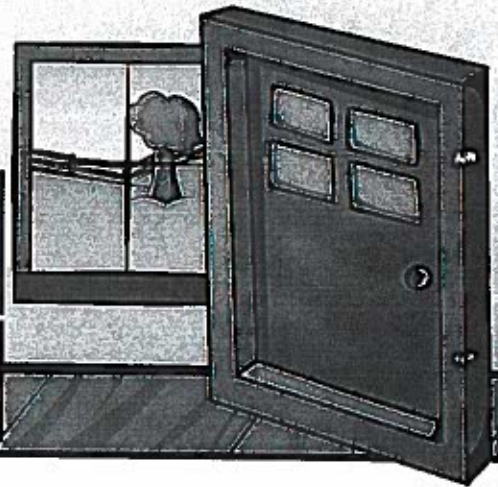


Skill: Finding the area of squares and rectangles

NAME: _____

DATE: _____

What kind of room has no windows OR doors and is full of fungus?

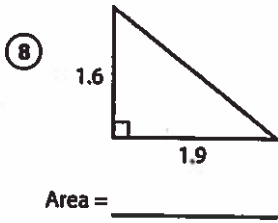
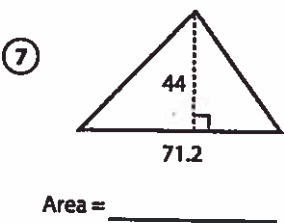
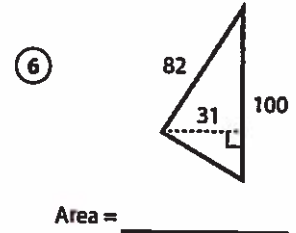
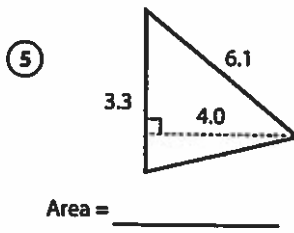
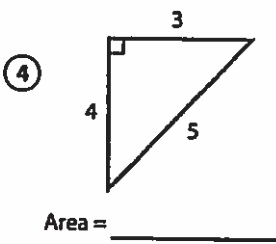
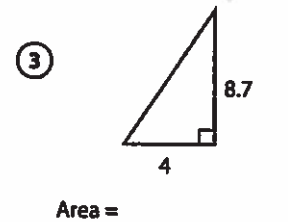
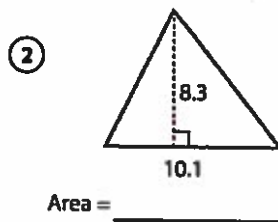
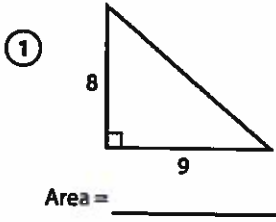


Solve the following problems and match your answers to the answers in the Legend. Then record the corresponding letter of the correct answer in the rectangles at the bottom to answer the riddle.
Note: The problem numbers match the numbered rectangles.

- | | | | | |
|---------------|-----------------|--------------|-----------------|-------------|
| U 17.4 | S 1.52 | S 6 | O 1566.4 | O 36 |
| R 1550 | H 41.915 | M 1.5 | M 6.6 | |

LEGEND →

Find the area of each triangle. Assume all answers in units squared:



⑨ A country's flag is made up of two triangles, one half white and one half blue. If the flag measures 2 feet wide and 1.5 feet tall, what is the area of each triangle?
 _____ ft²

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|--|
| | | | | | | | | | |
| 8 | 3 | 8 | 2 | 6 | 7 | 1 | 5 | 4 | |

Skill: Finding the area of triangles

NAME: _____

DATE: _____

What did the grape do when it was smashed?



DIRECTIONS

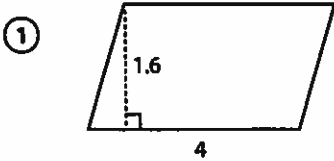
Solve the following problems and match your answers to the answers in the Legend. Then record the corresponding letter of the correct answer in the rectangles at the bottom to answer the riddle.

Note: The problem numbers match the numbered rectangles.

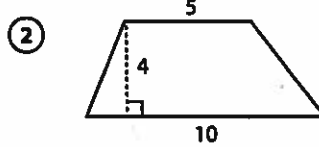
- | | | | | | |
|----------------|---------------|---------------|---------------|---------------|---------------|
| W 36.0 | I 16.3 | O 6.4 | N 21.0 | A 30.0 | L 28.2 |
| T 120.0 | H 36.1 | U 13.0 | E 20.0 | P 14.8 | |

LEGEND

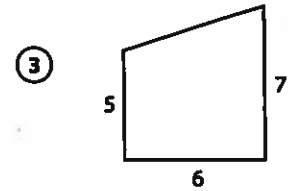
Find the area of each parallelogram or trapezoid. Round to the nearest tenth:



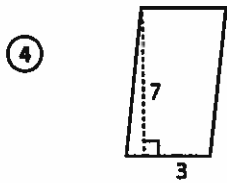
Area = _____ units²



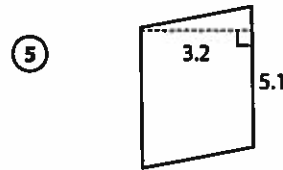
Area = _____ units²



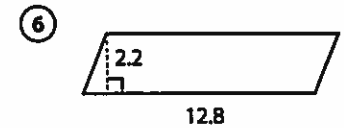
Area = _____ units²



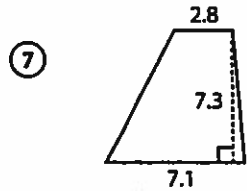
Area = _____ units²



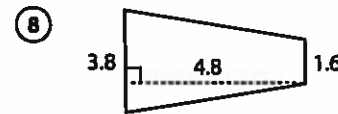
Area = _____ units²



Area = _____ units²



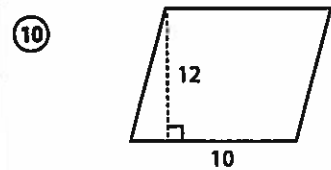
Area = _____ units²



Area = _____ units²



Area = _____ units²



Area = _____ units²



Skill: Finding the area of parallelograms and trapezoids

