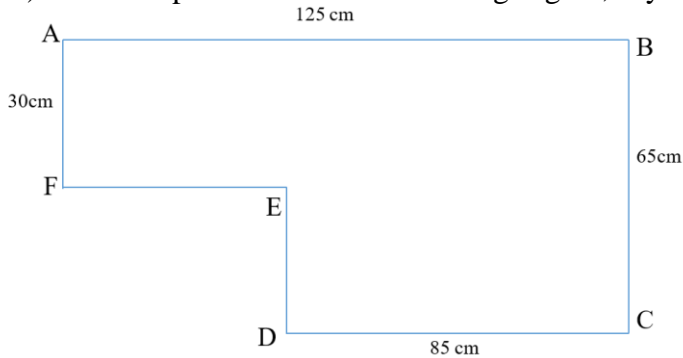


Homework Review

- 1) Find the perimeter of the following figure, if you know some of the sides:



- 2) At the school's art exhibition 40 drawings were presented. Out of them 8 drawings were made in pencil, and the rest were made with paints. How many times more drawings are done with paints than with a pencil?

New Material

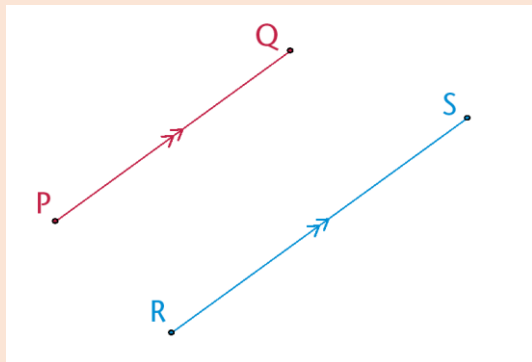
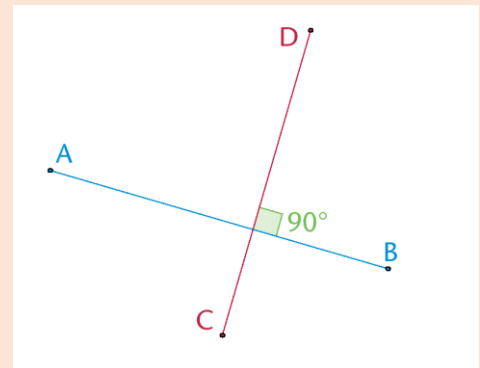
Parallel and Perpendicular lines.

The sketch on the right shows two **perpendicular** lines.

We say: AB is perpendicular to DC.

We write: $AB \perp DC$

Remember: perpendicular lines always intersect one another with a 90° angles.



The sketch on the left shows two **parallel** lines.

We say: PQ is parallel to RS.

We write: $PQ \parallel RS$

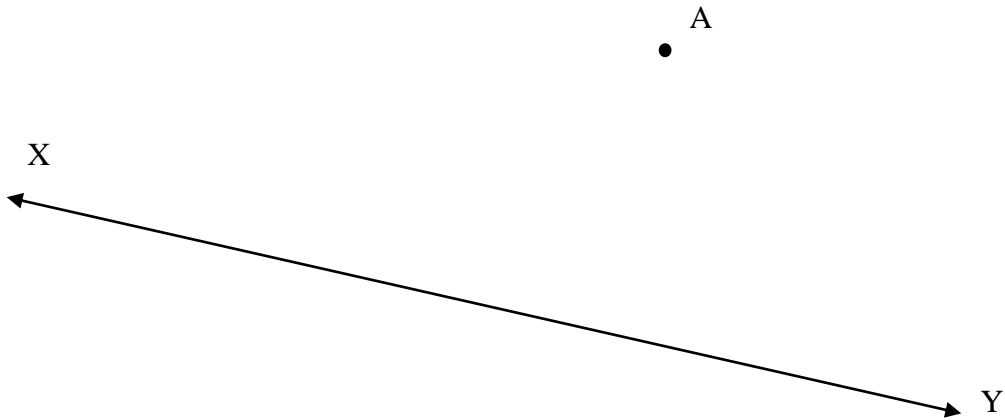
The arrows on the middle of the lines show that the lines are parallel to each other.

Remember: Parallel lines never intersect one another.

5.

Draw the line which is parallel to the line XY and that passes through point A.

1. Use your protractor to draw a line that goes through A and is at 90° to AB. Label the point C where your new line touches XY.



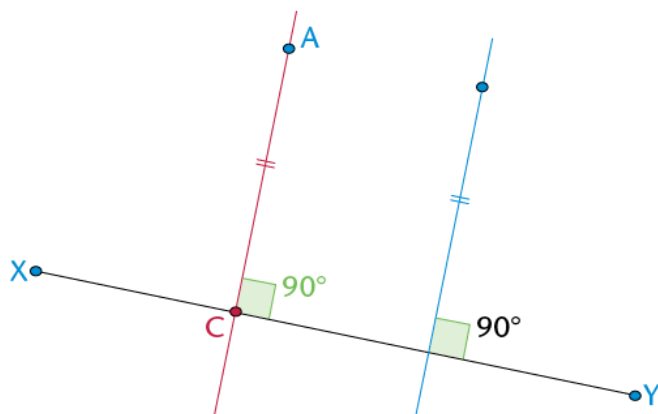
2. Measure the perpendicular distance between the point and the line.

Write down the length of AC: _____

3. Draw a point that is the same distance from the line.

Draw another line that is perpendicular to line XY. Mark off the same length as AC on that line.

The sketch below shows what you must get.

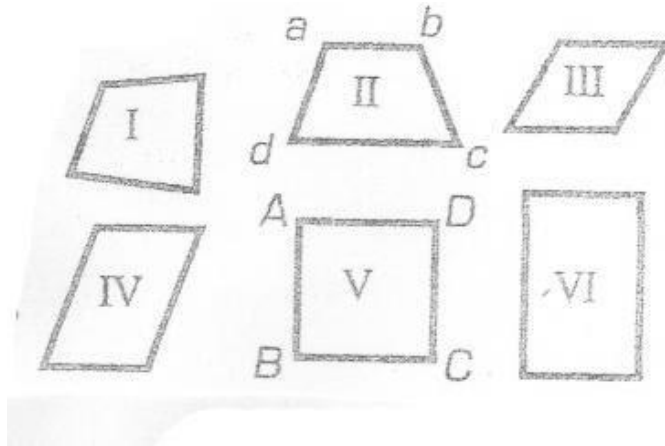


4. Draw the parallel line.

Join A with the new point that is an equal distance away from XY. You now have a parallel line.

Quadrilateral

A **Quadrilateral** has **four-sides**, it is **2-dimensional** (a flat shape), **closed** (the lines join up), and has **straight** sides.



A quadrilateral that has 2 parallel sides is called trapezoid.

What is the difference between the trapezoid II and the quadrilaterals III, IV, V, and VI?

How many parallel sides do these quadrilaterals have?

A quadrilateral that is formed by 2 pairs of the parallel sides is called a parallelogram.

What is the difference between the quadrilateral IV and the parallelogram III?

How are the sides related to each other?

A parallelogram with 4 equal (or congruent) sides is called rhombus.

Is there a parallelogram that has only 3 congruent (equal) sides?

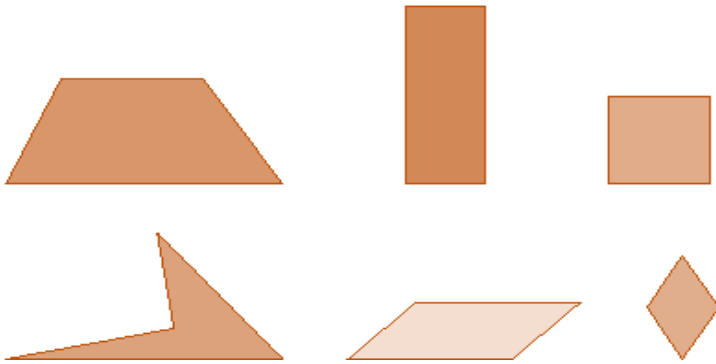
Why or why not?

What is the difference between the quadrilaterals V and VI and the other quadrilaterals on the picture?

What kind of angles do they have?

Quadrilateral

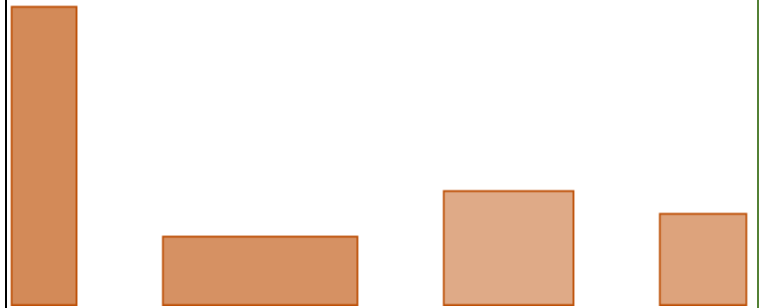
A four-sided polygon.



The sum of the angles of a quadrilateral is 360° degrees .

Rectangle

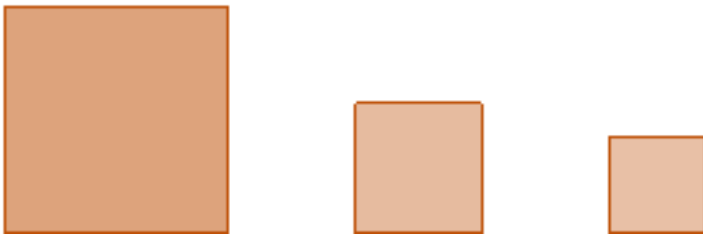
A four-sided polygon with all right angles



The sum of the angles of a rectangle is 360° degrees

Square

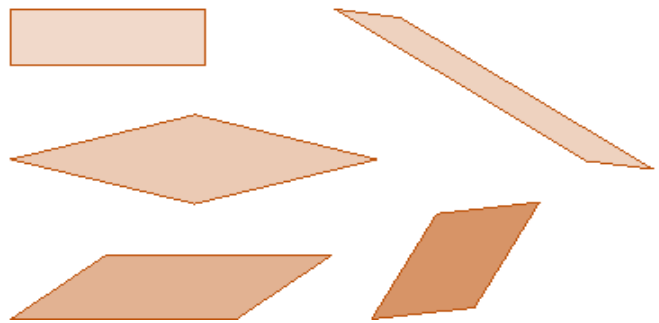
A four-sided polygon with equal-length sides meeting at right angles.



The sum of the angles of a square is 360° degrees

Parallelogram

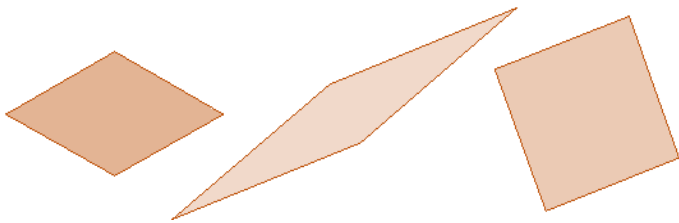
A four-sided polygon with two pairs of parallel sides.



The sum of the angles of a parallelogram is 360° degrees

Rhombus

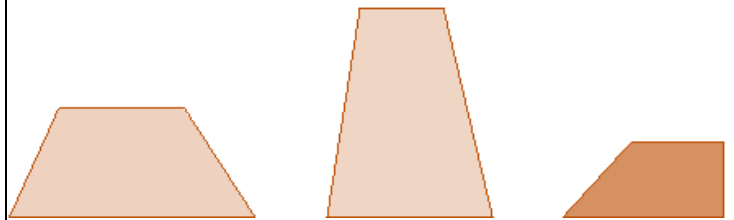
A four-sided polygon with all four sides of equal length



The sum of the angles of a rhombus is 360° degrees

Trapezoid

A four-sided polygon with an exactly one pair of parallel sides. The two sides that are parallel are called the bases of the trapezoid.



The sum of the angles of a trapezoid is 360° degrees

A triangle is a closed shape with three straight sides that meet at three vertices. It is a polygon.

Types of triangles:

By sides:

- a) **Scalene triangle** – no equal angles and no equal sides
- b) **Isosceles triangle** – 2 equal sides and 2 equal angles
- c) **Equilateral triangle** – 3 equal sides and 3 equal angles

By angles:

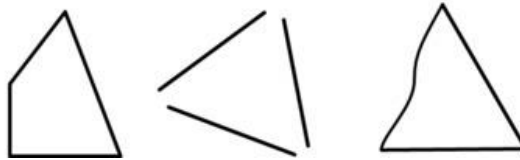
- a) **Right triangle**– has a right angle
- b) **Obtuse triangle** – has an angle that larger than a right angle
- c) **Acute triangle** – all angles are smaller than a right angle

Pay attention!

These are triangles



These are not triangles



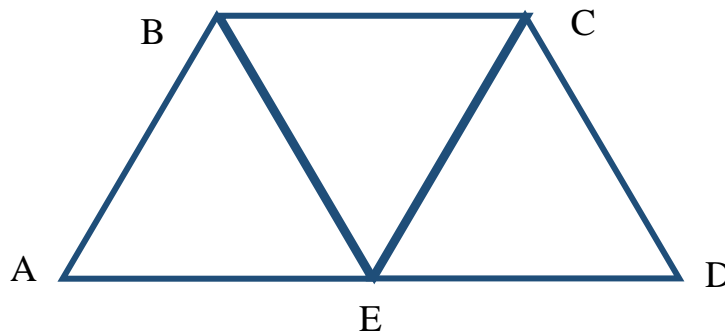
9.

The side of an equilateral triangle is 8 cm. Find a perimeter of this triangle.

P = _____

10

A quadrilateral consists of 3 equilateral triangles. The length of a side of each triangle is 6 cm. Find a perimeter of the quadrilateral. P = _____

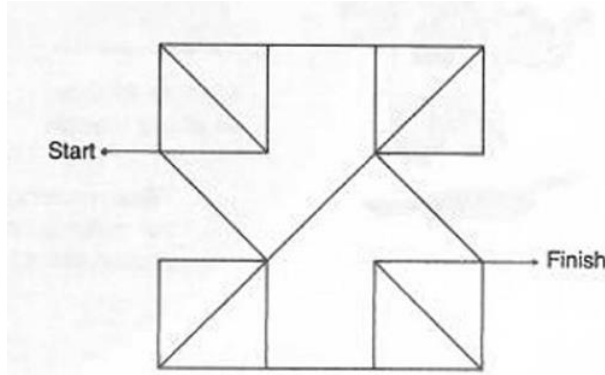


REVIEW

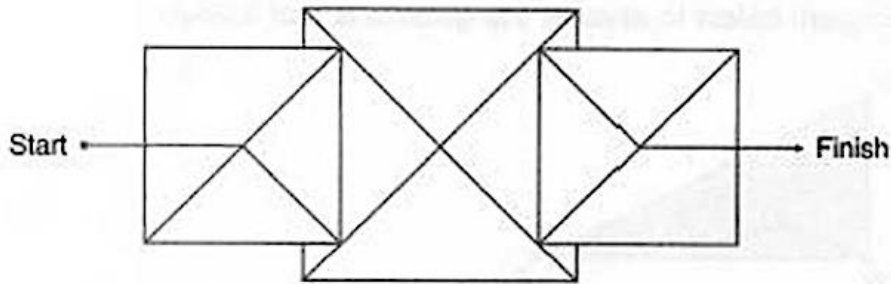
11

Complete each angle maze below by tracing a path from start to finish that has only acute angles. Be careful to avoid right angles in the next mazes:

a)



b)



12

Write down the expressions:

a) Milan spent $\$a$ for a soccer ball. It was $\$14$ less than he spent for his soccer cleats.

Write an expression for a cleats's price.

b) There are b boys in the class who play soccer, c boys in the class who play tennis and 4 boys who don't do any sport. Write an expression for a total number of boys in the class.

c) The distance between your house and a school's bus stop is a meters, the distance between bus stop at school and your class is b meters. What is the distance you walk every day on your way to and from school?

Challenge yourself

13

a) One penny out of three is fake. It is lighter than the others. How can you identify the fake coin by using a balance scale like the one shown in the picture? You can only weigh once!



b) How can you find one fake penny out of 9 pennies if you can only weigh twice?

Did you know ...

What's with all the Triangles? They seem to be everywhere. The Triangle has a rich and complex history and has, since early civilizations, been the symbol of the trilogy (or “triad”) that makes all existence possible.

Triangles are among the most important objects studied in mathematics owing to the rich mathematical theory built up around them in **Euclidean geometry** and **trigonometry**, and also to their applicability in such areas as astronomy, architecture, engineering, physics, navigation, and surveying.

The origins of right triangle geometry can be traced back to 3000 BC in Ancient Egypt. The Egyptians used special right triangles to survey land by measuring out 3-4-5 right triangles to make right angles. The Egyptians most studied specific examples of right triangles.



Ancient builders and surveyors needed to be able to construct right angles in the field on demand. The method employed by the Egyptians earned them the name “rope pullers” in Greece, apparently because they employed a rope for laying out their construction guidelines. One way that they could have employed a rope to construct right triangles was to mark a looped rope with knots so that, when held at the knots and pulled tight, the rope must

form a right triangle.

The simplest way to perform the trick is to take a rope that is 12 units long, make knot 3 units from one end and another 5 units from the other end, and then knot the ends together to form a loop. Try to make one yourself.

