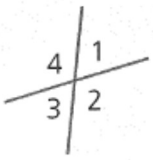
4:08 Vertically Opposite Angles

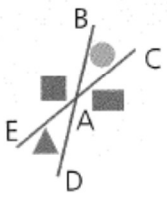
Vertically opposite angles are the opposite angles formed when two straight lines cross.



angle 1 = 67° angle 3 = 67°

angle 2 = 113° angle 4 = 113°

angle 1 = angle 3, angle 2 = angle 4



General Case
A cannot move.
The lines **EC** and **BD** can be turned to vary the angles.

▲ = 37° ● = 37°
▬ = 143° ■ = 143°

CONCEPT

Rule: Vertically opposite angles are equal.

1 Use a protractor to measure each angle.

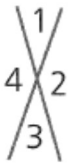
a

angle 1 = ° angle 2 = ° angle 3 = ° angle 4 = °

angle 1 = angle

angle 2 = angle

b



angle 1 = ° angle 2 = ° angle 3 = ° angle 4 = °

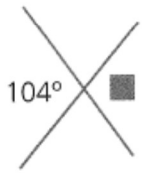
angle 1 = angle

angle 2 = angle

Estimate first.

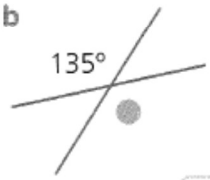
2 Find the value of the unknown angle.

a



■ =

b

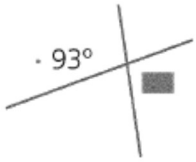


● =

c

▲ =

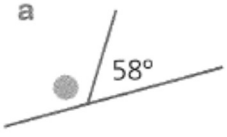
d



■ =

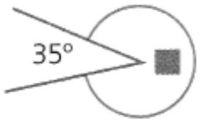
3 Find the missing angle.

a



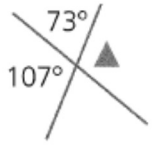
● =

b



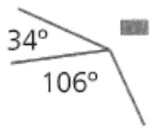
■ =

c



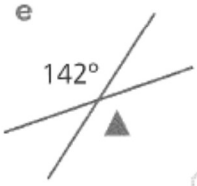
▲ =

d



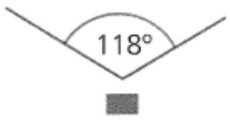
▬ =

e



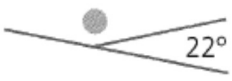
▲ =

f



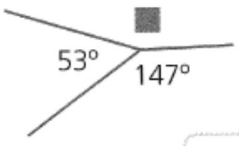
▬ =

g



● =

h

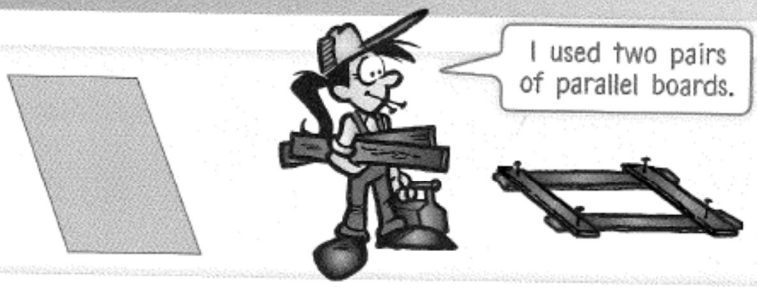


■ =

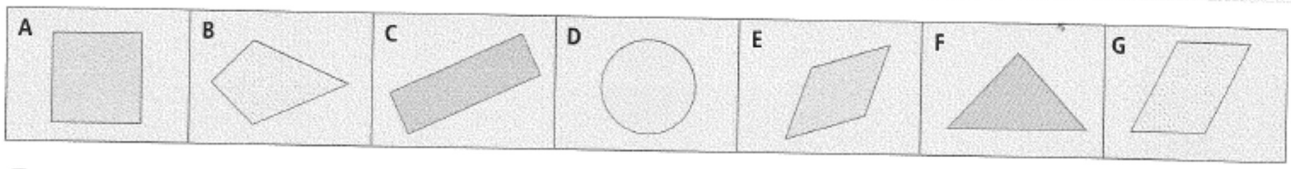
Geometric reasoning: Investigate, with and without digital technologies, angles on a straight line, angles at a point and vertically opposite angles. Use results to find unknown angles.

4:09 2D Shapes

A parallelogram is a quadrilateral that has opposite sides parallel.



CONCEPT



1 Which of the shapes above is a:

a triangle? ☐ b square? ☐ c rhombus? ☐ d kite? ☐

A pentagon has 5 sides.
A hexagon has 6 sides.
An octagon has 8 sides.

2 a Which of the shapes above have opposite sides parallel? ☐

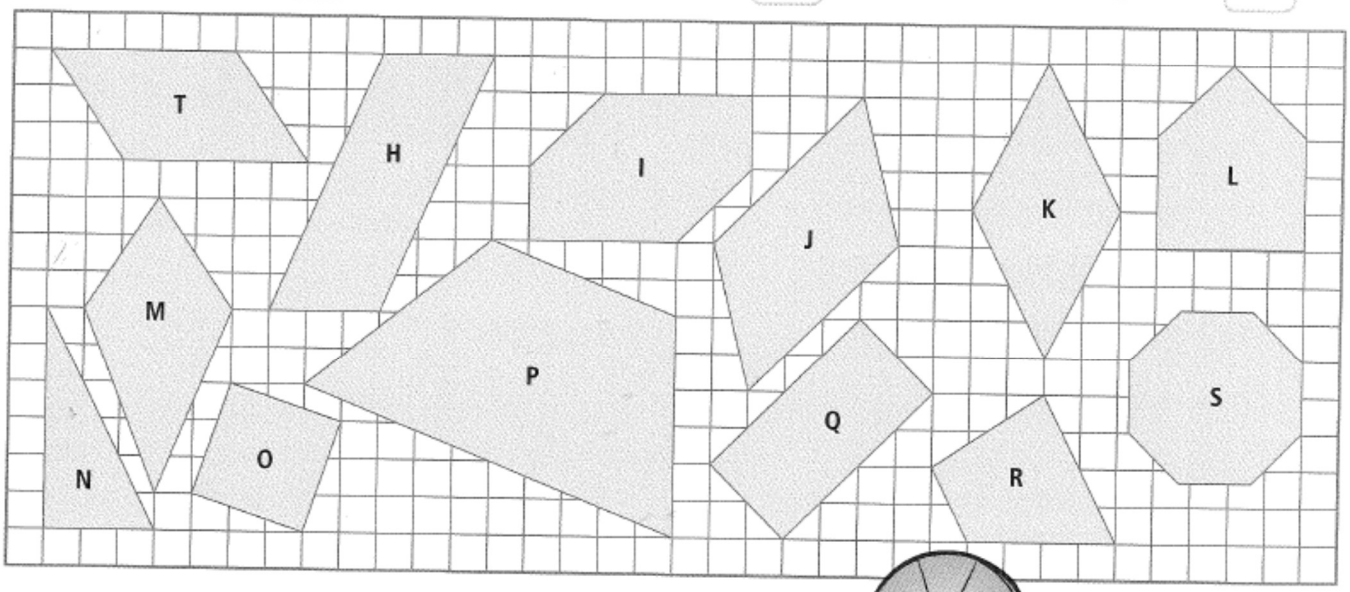
b Which of the shapes above have four right angles? ☐

c Which of the shapes above have all sides equal? ☐

3 Give the letter of a shape below that is a:

a pentagon ☐ b rectangle ☐ c rhombus ☐

d octagon ☐ e trapezium ☐ f hexagon ☐



4 Measure the side lengths of parallelograms **T** and **J**. Are opposite sides equal? ☐

5 Measure the angles of parallelograms **T** and **J**. Are opposite angles equal? ☐

Shape: Review essential facts. *[Progression]*