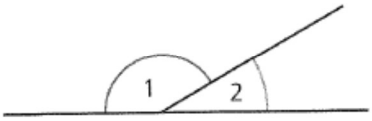
4.06 Angles on a Straight Line

1 Use a protractor to measure each angle.

a

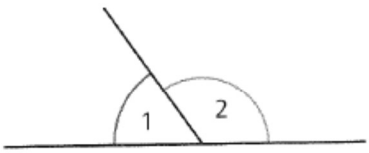


angle 1 = ☐°

angle 2 = ☐°

angle 1 + angle 2 = ☐°

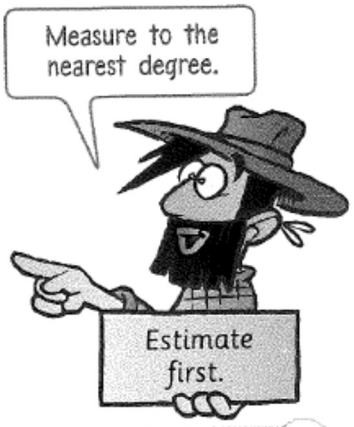
b



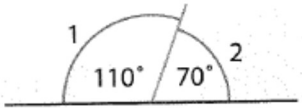
angle 1 = ☐°

angle 2 = ☐°

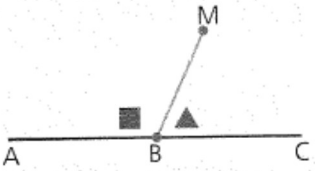
angle 1 + angle 2 = ☐°



Angles that make a straight angle add up to 180°.



angle 1 = 110°
angle 2 = 70°
110° + 70° = 180°



■ = 114.5°
▲ = 65.5°
■ + ▲ = 180°

CONCEPT

General Case

M is a movable point.
As M is dragged to new positions, the measurements for ■ and ▲ change.
However, the sum of the two angles is always 180°.

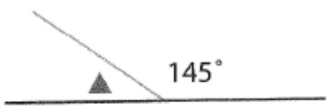
2 Find the value of the unknown angle.

a

180° – 25° = ☐

■ = ☐

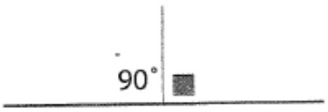
b



180° – 145° = ☐

▲ = ☐

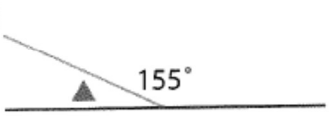
c



180° – 90° = ☐

■ = ☐

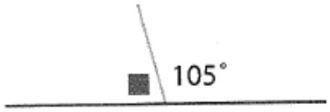
d



180° – 155° = ☐

▲ = ☐

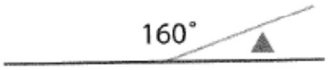
e



180° – 105° = ☐

■ = ☐

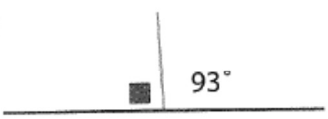
f



180° – 160° = ☐

▲ = ☐

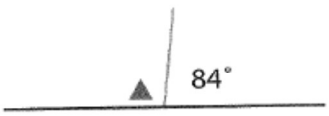
g



180° – 93° = ☐

■ = ☐

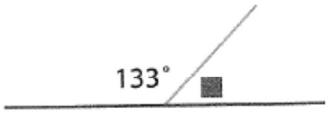
h



180° – 84° = ☐

▲ = ☐

i



180° – 133° = ☐

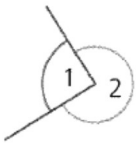
■ = ☐

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.

4:07 Angles at a Point

1 Use a protractor to measure each angle.

a

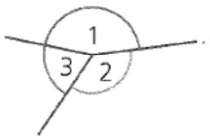


angle 1 = ☐°

angle 2 = ☐°

angle 1 + angle 2 = ☐°

b

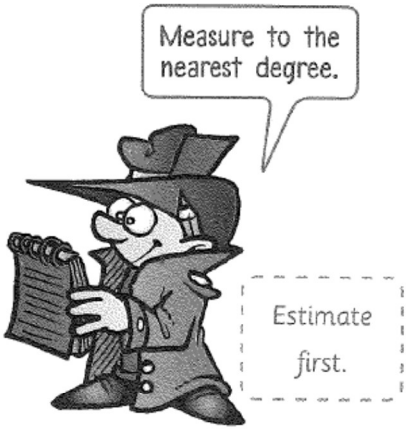


angle 1 = ☐°

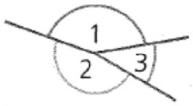
angle 2 = ☐°

angle 3 = ☐°

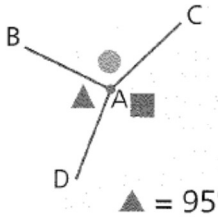
angle 1 + angle 2 + angle 3 = ☐°



Angles that meet at a point add up to 360°.



angle 1 = 150°
angle 2 = 170°
angle 3 = 40°
150° + 170° + 40° = 360°



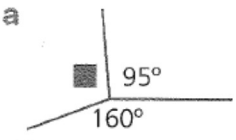
▲ = 95°
● = 110°
■ = 155°
▲ + ● + ■ = 360°

General Case
A cannot move (it is fixed). B, C and D can be dragged to new positions so that the measurements for ■, ● and ▲ change.
However, the sum of the three angles is always 360°.

CONCEPT

2 Find the value of the unknown angle.

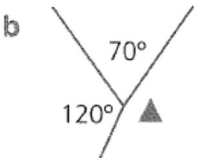
a



360° – 95° – 160° = ☐

■ = ☐

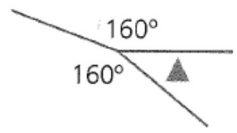
b



360° – 120° – 70° = ☐

▲ = ☐

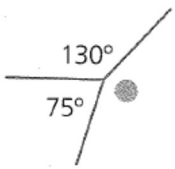
c



360° – 160° – 160° = ☐

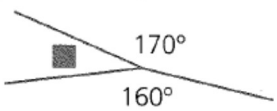
▲ = ☐

d



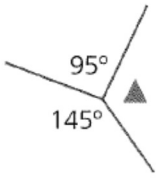
● = ☐

e



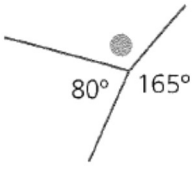
■ = ☐

f



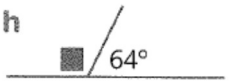
▲ = ☐

g



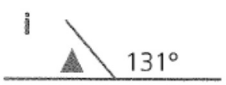
● = ☐

h



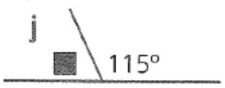
■ = ☐

i



▲ = ☐

j



■ = ☐

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.