

Angle-related problem-solving

CURRICULUM ALIGNMENT

SHA.SHP.4b investigate and construct angles in the context of shape; and solve angle-related problems.

INTERACTIVES Angle Tool · challenge, display, explore

WHAT THIS LESSON TEACHES

Angles on a straight line add up to 180° . Triangles also total 180° . Vertically opposite angles are equal.

→ If one angle on a line is 125° , the other must be $180^\circ - 125^\circ = 55^\circ$.

→ A triangle with angles 50° and 60° has a third angle of $180^\circ - 50^\circ - 60^\circ = 70^\circ$.

MODEL THIS ON THE BOARD

SOLVING A CHAINED FIGURE STEP BY STEP

- 1 Find the triangle's third angle first: $180^\circ - 65^\circ - 40^\circ = 75^\circ$ (triangle angles).
- 2 Use that 75° to find the angle beside it on the straight line: $180^\circ - 75^\circ = 105^\circ$ (straight line).
- 3 The vertically opposite angle to 105° is also 105° .

ANSWER KEY

b) 75°

c) 105°

Q1: 85°

Q2: 135°

Q3: 80°

a) Always — This is always true by definition of a straight angle.

b) Never — Order matters because some angles depend on finding others first.

c) Always — This is always true at the intersection point.

d) Never — Chained figures often require both facts in sequence.

EXTENSION SHEET · STRETCH ANSWERS

S1: 73°

S2: 69°

S3: 47° is acute

S4: 55°

S5: 110°