

Shape and angle construction review

WHAT THIS LESSON TEACHES

Build a triangle from three given side lengths using ruler and compass so only one unique triangle results.

→ From sides 6 cm, 5 cm, 4 cm, only one triangle can be built.

→ From sides 7 cm, 6 cm, 5 cm, the arcs cross at one point to fix the third vertex.

MODEL THIS ON THE BOARD

CONSTRUCT TRIANGLE FROM SIDES 7 CM, 6 CM, 5 CM

- 1 Draw the base line 7 cm long using a ruler.
- 2 Open compass to 6 cm and draw an arc from one end of the base.
- 3 Open compass to 5 cm and draw an arc from the other end of the base.
- 4 Mark the point where the two arcs cross.
- 5 Join this point to both ends of the base to complete the triangle.

DISCUSSION STARTER

REFLECT Which is harder — measuring an angle accurately or drawing one? Why?

ANSWER KEY

Scaffold: visual check on the page

Q1: SSS triangle 6 cm, 5 cm, 4 cm

Q2: $\approx 75.5^\circ$, 58° (third $\approx 46.5^\circ$)

a) Always — The compass arcs cross at only one possible point.

b) Sometimes — It depends if the angles are adjacent to the side or not.

c) Never — The sides must satisfy the triangle inequality.

d) Never — Reasoning from 180 degrees is exact while measuring can have error.

EXTENSION SHEET · STRETCH ANSWERS

S1: 47° is acute

S2: 55°

S3: 57°