

1) Describe the relationship that must occur for three **side lengths** to create a triangle.

2) Describe the relationship that must occur for three **angles** to create a triangle.

Determine if the following side lengths will create a triangle. Explain how you know.

3) 4 in, 8 in, 3 in

4) 5 mi, 22 mi, 10 mi

5) 10 cm, 8 cm, 6 cm

6) 80 mm, 37 mm, 52 mm

Determine if the following angles will create a triangle. Explain how you know.

7) $44^\circ, 85^\circ, 50^\circ$

8) $112^\circ, 14^\circ, 54^\circ$

9) $85^\circ, 27^\circ, 90^\circ$

10) $44^\circ, 59^\circ, 77^\circ$

11) How many triangles can you form with side lengths 10 cm, 15 cm, and 20 cm? Explain why.

12) How many triangles can you form with angles $50^\circ, 30^\circ$, and 100° ? Explain why.

13) Construct a triangle with side lengths of 12 cm, 5 cm, and 9 cm.

14) Construct a triangle with angles of 85° , 40° , and 55° .