Triangle Practice

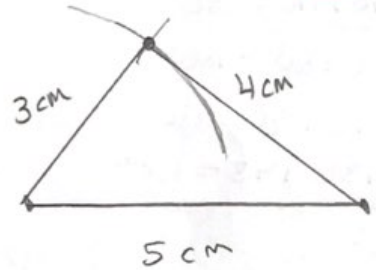
NAME_____

Problem Set

1. Decide whether each set of three given lengths determines a triangle. For any set of lengths that does determine a triangle, use a ruler and compass to draw the triangle. Label all side lengths. For sets of lengths that do not determine a triangle, write "Does not determine a triangle," and justify your response.

a. 3 cm, 4 cm, 5 cm

$3+4=7$ $7>5$ yes



b. 1 cm, 4 cm, 5 cm

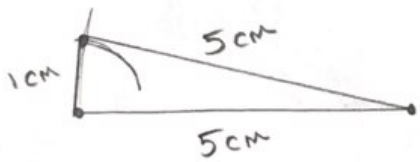
$1+4=5$

$5=5$

No it does not determine a triangle.

c. 1 cm, 5 cm, 5 cm

$1+5=6$ $6>5$ yes



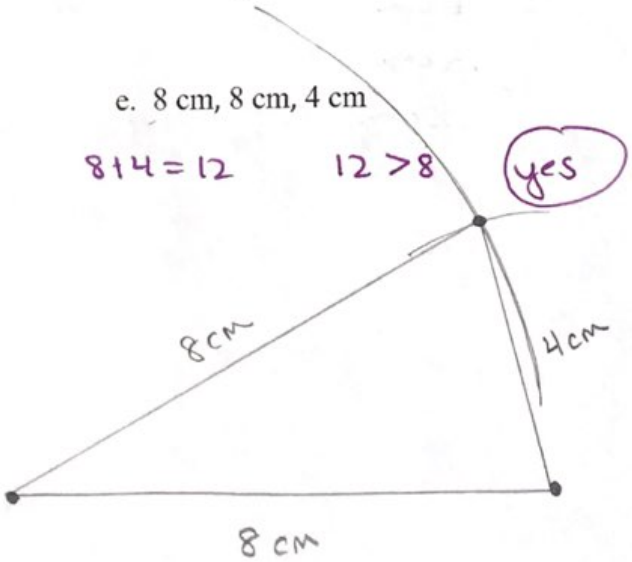
d. 8 cm, 3 cm, 4 cm

$3+4=7$ $7<8$

No it does NOT determine a triangle.

e. 8 cm, 8 cm, 4 cm

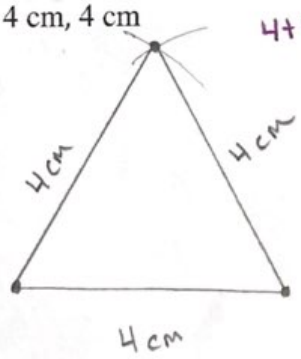
$8+4=12$ $12>8$ yes



f. 4 cm, 4 cm, 4 cm

$4+4=8$

$8>4$ yes



2. For each angle measurement below, provide one angle measurement that will determine a triangle and one that will not determine a triangle. Provide a brief justification for the angle measurements that will not form a triangle. Assume that the angles are being drawn to a horizontal segment AB; describe the position of the non-horizontal rays of angles ∠A and ∠B.

A	B: A Measurement That Determines a Triangle	B: A Measurement That *Does Not* Determine a Triangle	Justification for No Triangle
40°	1° — 139°	140° or higher	40 + 140 = 180°
100°	1° — 79°	80° or higher	100 + 80 = 180°
90°	1° — 89°	90° or higher	90 + 90 = 180°
135°	1° — 45°	45° or higher	135 + 45 = 180°

3. For the given side lengths, provide the minimum and maximum whole number side lengths that determine a triangle.

Given Side Lengths	Minimum Whole Number Third Side Length	Maximum Whole Number Third Side Length
5 cm, 6 cm	2 cm	10 cm
3 cm, 7 cm	5 cm	9 cm
4 cm, 10 cm	6 cm	13 cm
1 cm, 12 cm	12 cm	12 cm