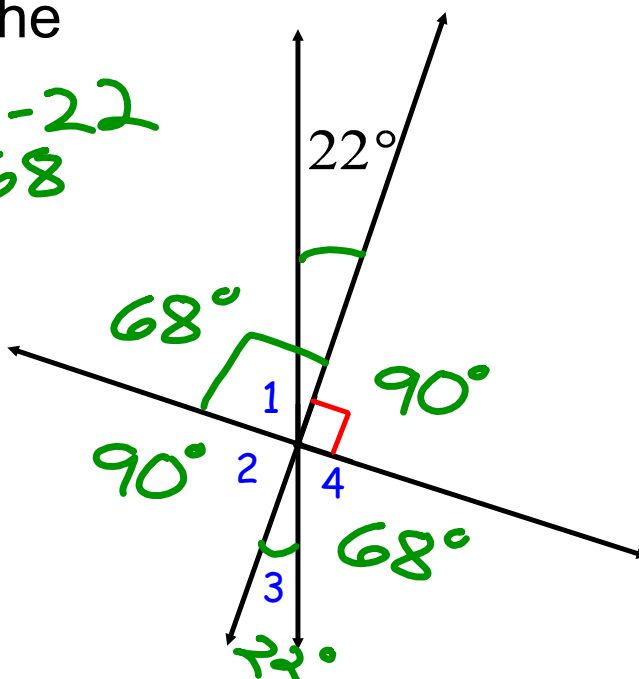


~~HW Worksheet~~

Warm up:

Find the measures of the missing angles.

$$\begin{array}{r} 90 - 22 \\ 68 \end{array}$$

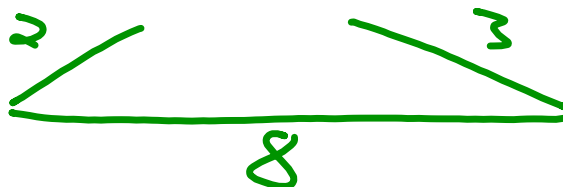


HW Solutions

1) Cut three pieces of yarn: 2in, 3in, and 8in.

2) Try to make a triangle using the pieces of yarn.

3) What do you notice?



Triangle Inequality Theorem

The diagram shows the equation $a + b > c$ enclosed in a red hand-drawn box. Above the box, the text "2 shorter sides" is written in red, with two arrows pointing to the variables a and b . To the right, the text "longest side" is written in red, with an arrow pointing to the variable c .

$$a + b > c$$

 <http://www.mathopenref.com/triangleinequality.html>

It is possible to have a triangle with the following side lengths?

1) 5m, 17m, 20m

$$\begin{array}{l} 5 + 17 \\ 22 > 20 \end{array} \quad \text{yes}$$

4) 16yd, 8yd, 9yd

$$\begin{array}{l} 8 + 9 \\ 17 > 16 \end{array} \quad \text{yes}$$

2) 6mi, 4mi, 9mi

$$\begin{array}{l} 6 + 4 \\ 10 > 9 \end{array} \quad \text{yes}$$

5) 8in, 3in, 2in

$$\begin{array}{l} 5 \neq 8 \\ \text{no} \end{array}$$

3) 10ft, 10ft, 22ft

$$\begin{array}{l} 20 \neq 22 \\ \text{no} \end{array}$$

6) 12km, 4km, 9km

$$\begin{array}{l} 4 + 9 \\ 13 > 12 \end{array} \quad \text{yes}$$

1) Cut off three pieces of yarn that can form a scalene triangle.



2) Arrange them so that they form a triangle.

3) Try to form another triangle with the same sides. Is it congruent to the first triangle? *yes*

4) How many different triangles can you make?

1

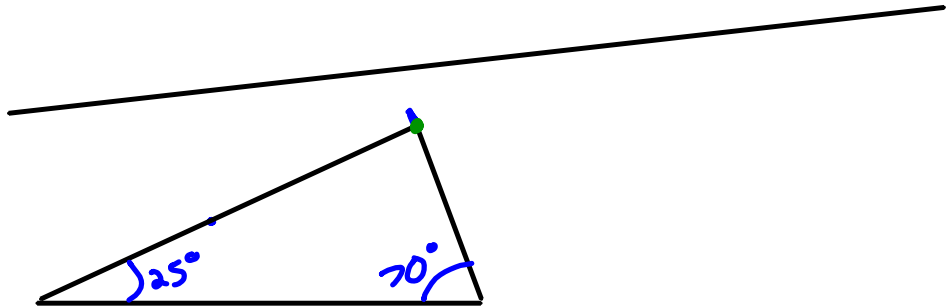
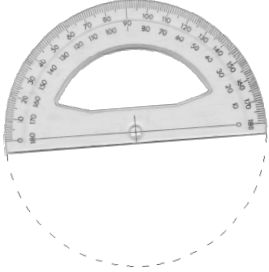


Draw a triangle with angles measuring 25 degrees, 70 degrees, and 85 degrees. *add up to 180°*

Try to draw another triangle with the same angle measures.

How many different triangles can you make?

infinitely many



How many different triangles could you make with the given information?

$$4 + 5 = 9 \quad 9 > 8$$

1) side length 4cm, 5cm, 8cm

①

2) side lengths 10in, 3in, 5in

②

3) side lengths 17m, 14m, 34m

②

4) angle measures 40° , 60° , 80°

$$40 + 60 + 80 = 180^\circ$$

infinitely many

5) angle measures 13° , 18° , 149°

$$13 + 18 + 149 = 180^\circ$$

infinitely many

6) angle measures 22° , 96° , 59°

$$22 + 96 + 59 = 177$$

②

