

### Warm - Up

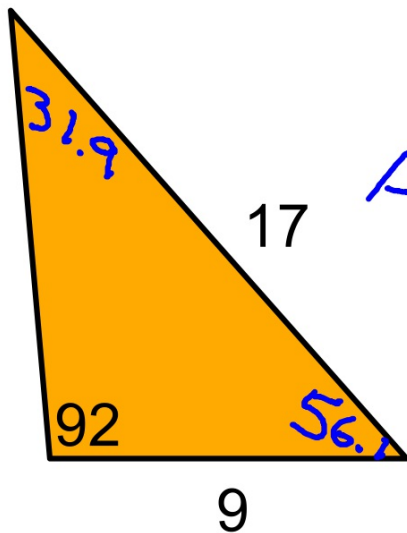
Find the area of each triangle

$$\frac{\sin 92}{17} = \frac{\sin x}{9}$$

$$x = 31.9$$

$$A = \frac{1}{2} (9)(17) \sin 56$$

$$A = 63.5$$



SWBAT understand what they did wrong on the previous unit test

SWBAT find the number of solutions in the ambiguous case

Agenda:

- Warm-Up

- HW Questions

- Pass back tests (NEED THEM BACK)

- Ambiguous case

HW - BOOK Page 484 #13-36 odd. 40, 44, 45

So far we have found out that the law of sines work for:  
ASA or AAS

The law of sines does not work well with SSA.

This is where the ambiguous case comes in.

**Facts we need to remember:**

1. In a triangle, the sum of the interior angles is  $180^\circ$ .
2. No triangles can have two obtuse angles.
3. The sine function has a range of  $-1 \leq \sin \theta \leq 1$ .
4. If the  $\sin \theta = \text{positive decimal} < 1$ , the  $\theta$  can lie in the first quadrant (acute  $<$ ) or in the second quadrant (obtuse  $<$ ).



**Example 1:** In  $\triangle ABC$ ,  $a = 20$ ,  $c = 16$ , and  $m\angle A = 30^\circ$ . How many distinct triangles can be drawn given these measurements?

**Example 2:** In  $\triangle ABC$ ,  $a = 7$ ,  $c = 16$ , and  $m\angle A = 30^\circ$ . How many distinct triangles can be drawn given these measurements?

**Example 3:** In  $\triangle ABC$ ,  $a = 10$ ,  $b = 16$ , and  $m\angle A = 30^\circ$ . How many distinct triangles can be drawn given these measurements?

Exit Card:

Find how many solutions and what the solutions are for the following triangle:

$$B = 82^\circ, a = 17, \text{ and } c = 15$$





