**law of cosines and law of sines Name:**

Solving a triangle means finding the missing measures of its sides and angles. To solve a triangle that is not a right triangle, you need to know the measure of at least one side and the measures of any two other parts of the triangle. **Why do you need these ingredients**?

The **law of cosines** relates the cosine of any angle of a triangle to the lengths of the three sides of the triangle.

1) In $ΔABC$, a = 10, c = 7, and . What is the length of side b?

2) In $ΔABC$, a = 6, b = 10, and . What is the length of side c?

3) In $ΔDOG$, d = 3, o = 4, and g = 5. What is the measure of ? (Use your trig table to find  to the nearest degree.)

4) In , p = 3, e = 5, and t = 7. What is the measure of the largest angle?

**Law of Sines**

In addition to using the law of cosines, you can also use the **law of sines** in order to find the measures of sides or angles in non-right triangles.

5) In $ΔABC$, a = 12, sin A= 0.6, and sin B = 0.9. Find b.

6) In $ΔABC$, , , and the side opposite the vertex B is 7. Find the length of the side opposite vertex A. (Leave answer in exact form; no need to find trig ratios)

7) In parallelogram ABCD, AD = 10, diagonal AC = 15, and . Find .

(Use trig table.)