

# Triangles Worksheet

## Right Triangle Trigonometry

1. Triangle  $ABC$  is a right triangle with  $C = 90^\circ$ . If  $a = 6$  and  $c = 10$ , find the six trigonometric functions of  $A$ .
2. In the right triangle  $ABC$ ,  $A = 40^\circ$  and  $c = 12$  centimeters. Find  $a$ ,  $b$ , and  $B$ .
3. The two equal sides of an isosceles triangle are each 24 centimeters. If each of the two equal angles measures  $52^\circ$ , find the length of the base and the altitude.
4. A man climbs 213 meters up the side of a pyramid and finds that the angle of depression to his starting point is  $52.6^\circ$ . How high off the ground is he?

## The Law of Sines

1. In triangle  $ABC$ ,  $A = 30^\circ$ ,  $B = 70^\circ$ , and  $a = 8.0$  cm. Find the length of side  $c$ .
2. Find the missing parts of triangle  $ABC$  if  $B = 34^\circ$ ,  $C = 82^\circ$ , and  $a = 5.6$  cm.

### The Ambiguous Case

1. Find angle  $B$  in the triangle  $ABC$  if  $a = 2$ ,  $b = 6$ , and  $A = 30^\circ$ .
2. Find the missing parts in triangle  $ABC$  if  $a = 54$  cm,  $b = 62$  cm and  $A = 40^\circ$ .
3. Find the missing parts of triangle  $ABC$  if  $C = 35.4^\circ$ ,  $a = 205$  ft and  $c = 314$  ft.

### The Law of Cosines

1. Find the missing parts of triangle  $ABC$  if  $A = 60^\circ$ ,  $b = 20$  inches and  $c = 30$  inches.
2. The diagonals of a parallelogram are 24.2 cm and 35.4 cm, and intersect at an angle of  $65.5^\circ$ . Find the length of the shorter side of the parallelogram.
3. Solve triangle  $ABC$  if  $a = 34$  cm,  $b = 20$  km, and  $c = 18$  km.