Triangles Worksheet

Right Triangle Trigonometry

1. Triangle \( ABC \) is a right triangle with \( C = 90\degree \). If \( a = 6 \) and \( c = 10 \), find the six trigonometric functions of \( A \).

2. In the right triangle \( ABC \), \( A = 40\degree \) 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 \( 52\degree \), 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 \( 52.6\degree \). How high off the ground is he?

The Law of Sines

1. In triangle \( ABC \), \( A = 30\degree \), \( B = 70\degree \), and \( a = 8.0 \) cm. Find the length of side \( c \).

2. Find the missing parts of triangle \( ABC \) if \( B = 34\degree \), \( C = 82\degree \), 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.