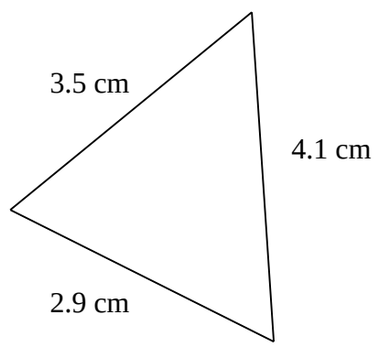
MCR3U **Trigonometry Review:** **Name:**

Formulas and Identities:

The Trig Ratios Relationship SOHCAHTOA	**Quotient Identity** $\tan x = \frac{\sin x}{\cos x}$
Sine Law $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$	**Pythagorean Identity** $\sin^2 x + \cos^2 x = 1$
Cosine Law $c^2 = a^2 + b^2 - 2ab\cos C$	

Solving Triangles with the Sine and Cosine Laws

1. SOLVE the following triangle.
   (Find all the missing SIDES and ANGLES.)



The Ambiguous Case of the Sine Law

2. For the AMBIGUOUS CASE triangle that follows, solve both cases for all ANGLES and SIDES. Include sketches of both triangles.

   ΔABC, where $\angle A = 23°$, a = 11.9 cm, b = 16.8 cm

CAST

3. Using the CAST concept, solve for all the angles that are solutions to the following trigonometric ratios.

(a) $\cos\theta = \frac{2}{3}$ $0 \le \theta \le 360^o$ (b) $\sin\theta = -0.8660$ $-180° \le \theta \le 540^o$

4. What is the EXACT answer for the following (no decimals):

(a) $\boldsymbol{sin\ 60^o =}$ **(b)** $\boldsymbol{sin\ 225^o =}$

Solving Trig Equations

5. Solve the following equations for x. The domain for all three questions is $0° \le x \le 360°$.

(a) $4\cos x - 2 = 0$ (b) $2\sin^2 x - 1 = 0$ (c) $\tan x + \tan x \cos x = 0$

Proving Identities

6. Prove the following identities: (Comm - 10 marks)

(a) $\tan^2 x = \dfrac{1-\cos^2 x}{\cos^2 x}$ (b) $(\sin x + \cos x)^2 = 1 + 2\sin x \cos x$

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