Lesson Plan

Grade 10 Academic Math **Lesson: 7 - 5**

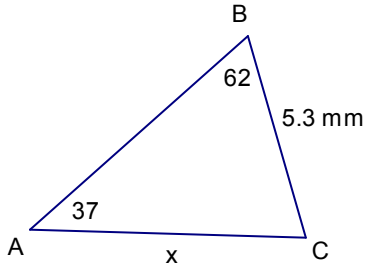
Unit: Trigonometry **Topic: Sine Law**

- ***homework check:*** **Principles of Mathematics 10 p. 412 #4 – 14**

- ***note:*** **Sine Law**

The sine law can be used to solve for either an unknown side or an unknown angle. To use the sine law, you must know at least one pair of information in the triangle. That pair must include an angle and a side. Because the ratios of side lengths and the sine of the matching angle are equivalent, the sine law uses proportions of these ratios. Therefore, the sine law states that $\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$. When using the sine law to solve, you need only two of these proportions to create an equation. For example, given the following triangles, find the unknown.

a)



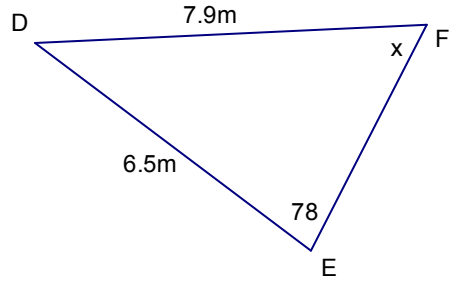
$$\frac{\sin 37}{5.3} = \frac{\sin 62}{x}$$

$$x \sin 37 = 5.3 \sin 62$$

$$x = \frac{5.3 \sin 62}{\sin 37}$$

$$x = 7.8mm$$

b)



$$\frac{\sin 78}{7.9} = \frac{\sin x}{6.5}$$

$$\frac{6.5 \sin 78}{7.9} = \sin x$$

$$x = \sin^{-1}\left[\frac{6.5 \sin 78}{7.9}\right]$$

$$x = 53.6°$$

- ***note:*** **<u>Principles of Mathematics 10</u> p. 433 #1, 5, 8, 9, 11**