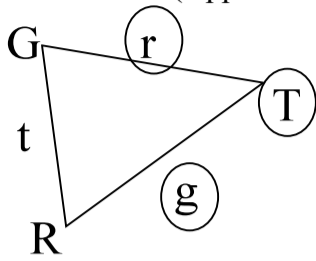
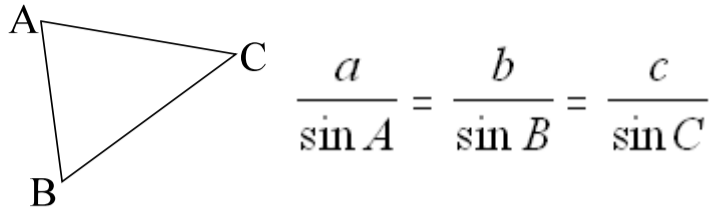


1. Label the missing sides or angle using labeling convention (Upper case lower case) [1]



2. State the Law of Sines for the following triangle [1]

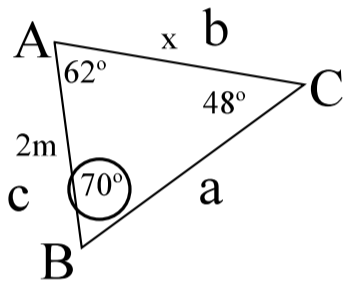


3.a) When can you use “right triangle trig (sin, cos, tan)”: Answer: when you have a right angle [1]

b) When can you use the “law of sines”: Answer: when you have an angle and side opposite [1]

c) When can you use the “law of cosines”: Answer: when you can’t use the LOS or RTT [1]

4. Find “x” using the law of sines[3]



$$B = 180 - 48 - 62 = 70^\circ$$

$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{\sin 62^\circ} = \frac{x}{\sin 70^\circ} = \frac{2}{\sin 48^\circ}$$

$$\frac{x}{\sin 70^\circ} = \frac{2}{\sin 48^\circ}$$

$$\frac{x}{0.9397} = \frac{2}{0.7431}$$

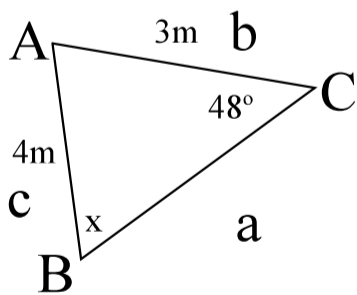
$$(0.7431)(x) = (0.9397)(2)$$

$$0.7431x = 1.8794$$

$$\frac{0.7431x}{0.7431} = \frac{1.8794}{0.7431}$$

$$x = 2.5m$$

5. Find “x” using the law of sines[3]



$$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$$

$$\frac{a}{\sin A} = \frac{3}{\sin x} = \frac{2}{\sin 48^\circ}$$

$$\frac{3}{\sin x} = \frac{4}{\sin 48^\circ}$$

$$\frac{3}{\sin x} = \frac{4}{0.7431}$$

$$(4)(\sin x) = (3)(0.7431)$$

$$4 \sin x = 2.2293$$

$$\frac{4 \sin x}{4} = \frac{2.2293}{4}$$

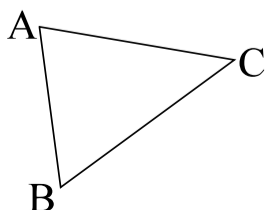
$$\sin x = 0.5573$$

$$x = 33.8^\circ$$

$$x = 34^\circ \text{ and } 146^\circ$$

146° is not a solution

8. State the three possible Law of Cosines for the following triangle[1]

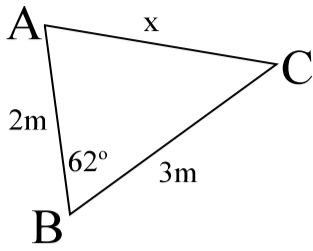


$$a^2 = b^2 + c^2 - 2bc \cos A$$

$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$

7. Find "x" using the law of cosines[3]



$$b^2 = a^2 + c^2 - 2ac \cos B$$

$$(x)^2 = (3)^2 + (2)^2 - 2(3)(2) \cos 62^\circ$$

$$(x)^2 = (3)^2 + (2)^2 - 2(3)(2)(0.4695)$$

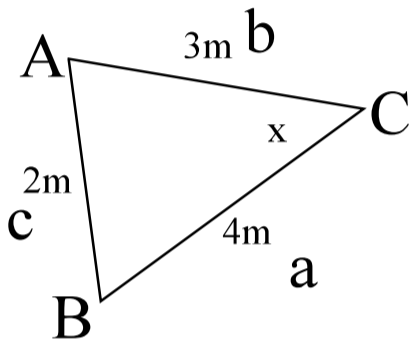
$$x^2 = 9 + 4 - 5.634$$

$$x^2 = 7.366$$

$$\sqrt{x^2} = \pm \sqrt{7.366}$$

$$x = 2.7$$

8. Find "x" using the law of cosines[3]



$$\cos C = \frac{a^2 + b^2 - c^2}{2ab}$$

$$\cos C = \frac{(4)^2 + (3)^2 - (2)^2}{2(4)(3)}$$

$$\cos C = \frac{16 + 9 - 4}{24}$$

$$\cos C = \frac{21}{24}$$

$$\cos C = 0.875$$

$$C = 28.95$$

$$C = 29^\circ$$

9. State the three possible area formulas for $\triangle ABC$

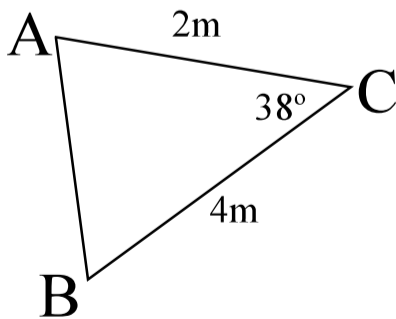
[1]

$$area = \frac{1}{2} ab \sin C$$

$$area = \frac{1}{2} ac \sin B$$

$$area = \frac{1}{2} bc \sin A$$

10. Find the area of the following triangle[3]



$$area = \frac{1}{2} ab \sin C$$

$$area = \frac{1}{2} (4)(2) \sin 38^\circ$$

$$area = (0.5)(4)(2)(0.6157)$$

$$area = 2.46$$

$$area = 2.5 m^2$$