Math 20-2 **Name:** KEY

Trigonometry Quiz - 2017

1. Solve:
   a) Solve for side indicated, rounded to one decimal place.
      i. $\frac{5.4}{sin70} = \frac{x}{sin80}$

$x = 5.4(\sin 80) \div \sin 70 = 5.659$

$x = 5.7$

      ii. $x^2 = 7.5^2 + 4.2^2 - 2(7.5)(4.2)cos72$

$x^2 = 54.42$

$x = 7.4$

[4]

   b) Find the measure of A to the nearest degree.
      i. $\frac{15}{sinA} = \frac{12}{sin50}$

$\sin A = \frac{15(\sin 50)}{12} = 0.9576$

$A = \sin^{-1}(0.9576) = 73°$

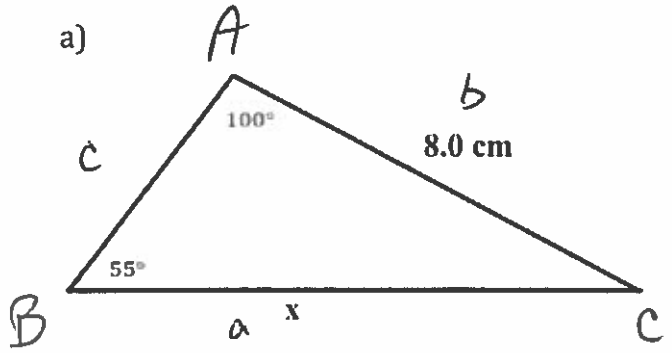
      ii. $cosA = \frac{6.0^2+9.0^2-8.0^2}{2(6.0)(9.0)}$

$\cos A = \frac{53}{108}$ $\cos^{-1}(53/108)$

$A = 61°$

2. Label the triangles using A, B, and C for the angles and using a, b and c for the sides. Find the length of the side indicated, round to one decimal place.

a)

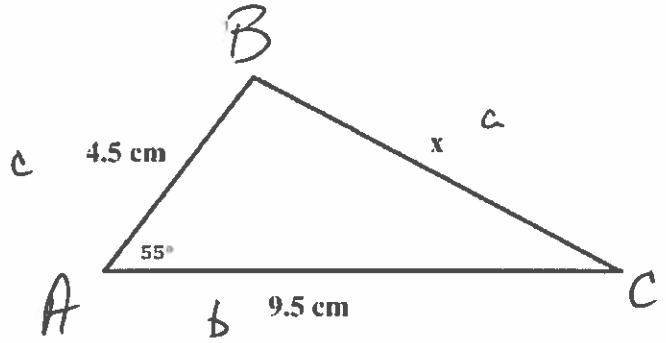


$$\frac{x}{\sin 100} = \frac{8.0}{\sin 55} \qquad x = \frac{8.0(\sin 100)}{\sin 55}$$

$$x = 9.6$$

[4]

b)



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

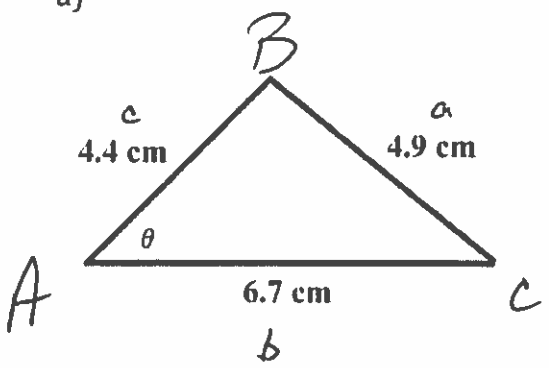
$$x^2 = 9.5^2 + 4.5^2 - 2(9.5)(4.5)\cos 55$$

$$x^2 = 61.46$$

$$x = 7.8$$

3. Label the triangles using A, B, and C for the angles and using a, b and c for the sides. Find the measure of the angle indicated, round to a whole number.

a)



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

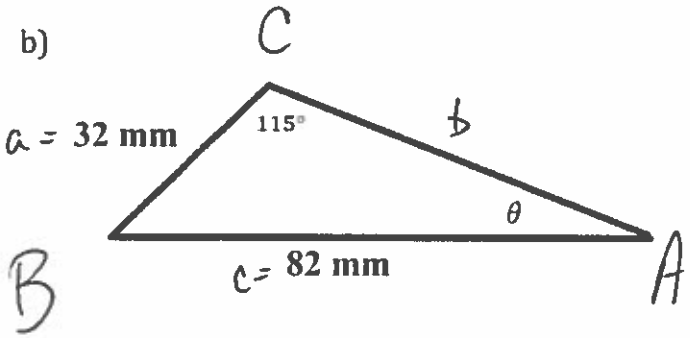
$$\cos A = \frac{6.7^2 + 4.4^2 - 4.9^2}{2(6.7)(4.4)}$$

$$\cos A = \frac{40.24}{58.96}$$

$$A = 47^\circ$$

[4]

b)



$$\frac{32}{\sin\theta} = \frac{82}{\sin 115}$$

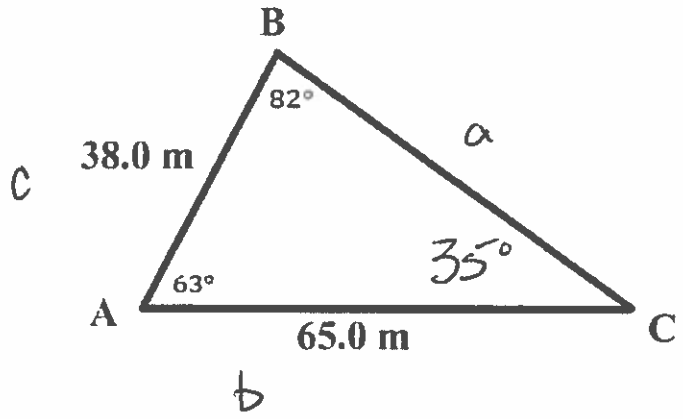
$$\sin\theta = \frac{32(\sin 115)}{82} = 0.3537$$

$$\theta = \sin^{-1}(0.3537)$$

$$\theta = 21^\circ$$

4. ~~3.~~ Solve the triangle.

[3]



$C = 180 - 63 - 82$

$C = 35°$

$\frac{a}{\sin 63} = \frac{65}{\sin 82}$

$a = \frac{65(\sin 63)}{\sin 82}$

$a = 58.5$

OR

$a^2 = 65^2 + 38^2 - 2(65)(38)\cos 6$

$a^2 = 3426.3$

$a = 58.5$

OR

$\frac{a}{\sin 63} = \frac{38}{\sin 35}$

$a = \frac{38(\sin 63)}{\sin 35}$

$a = 59.0$