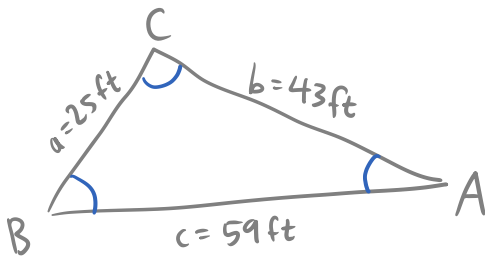


1. Solve triangle  $ABC$  if  $a = 25$  ft,  $b = 43$  ft, and  $c = 59$  ft. (Hint: you can use the Law of Cosines to get one angle, then the Law of Sines to get another angle.)



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

$$25^2 = 43^2 + 59^2 - 2(43)(59) \cos A$$

$$625 = 1849 + 3481 - 5074 \cos A$$

$$-4705 = -5074 \cos A$$

$$\cos A = \frac{4705}{5074}$$

$$A = \cos^{-1}\left(\frac{4705}{5074}\right)$$

$$\approx \boxed{22^\circ}$$

Law of Cosines again:

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

$$43^2 = 25^2 + 59^2 - 2(25)(59) \cos B$$

$$1849 = 625 + 3481 - 2950 \cos B$$

$$-2257 = -2950 \cos B$$

$$\cos B = \frac{2257}{2950}$$

$$B = \cos^{-1}\left(\frac{2257}{2950}\right) \approx \boxed{40^\circ}$$

$$C = 180^\circ - 22^\circ - 40^\circ$$

$$= \boxed{118^\circ}$$

Q: What word can you make by adding letters to each side of XYG? (Hint: add one letter to the left side, and two letters to the right side.)