

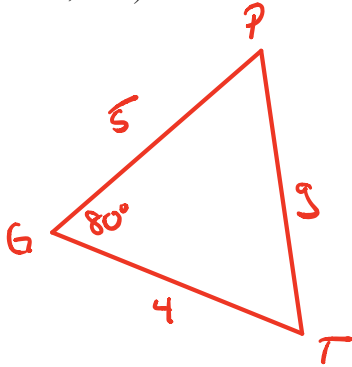
# More Trig

Hw Review 10b

Name \_\_\_\_\_

Round all answers to two decimal places.

#1) Wonder Woman is in Gnaden. Using her super vision, she deduces Port Washington is exactly 5 miles from Gnaden. While in Gnaden, she also deduces that Tusky is 4 miles from Gnaden. If the angle between her two lines of sight is  $80^\circ$ , how far is Tusky to Port? (Make a drawing, write the equation, solve)



$$g^2 = t^2 + p^2 - 2tp \cos(\angle G)$$

$$g^2 = (5)^2 + (4)^2 - 2(5)(4) \cos(80^\circ)$$

$$g^2 = 25 + 16 - 40 \cos(80^\circ)$$

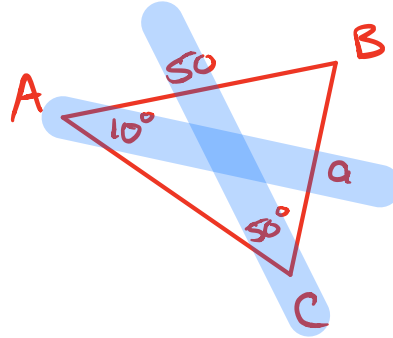
$$g^2 = 41 - 40 \cos(80^\circ)$$

$$g = \pm \sqrt{41 - 40 \cos(80^\circ)}$$

$$g \approx 5.83$$

The distance from Tusky to Port is about 5.83 miles.

#2) Pamela purchases a triangular plot of land. She decides to plant a tree on each corner (vertex) of her land. She plants an apple tree on one corner, a banana tree on another corner, and a coconut tree on the final corner. The apple tree is 50' from the banana tree. At the apple tree, the sides of the property form a  $10^\circ$  angle. At the coconut tree, the sides of the property form a  $50^\circ$  angle. How far is the banana tree from the coconut tree? (Make a drawing, write the equation, solve)



$$\frac{\sin(50^\circ)}{50} = \frac{\sin(10^\circ)}{a}$$

$$a \cdot \sin(50^\circ) = 50 \sin(10^\circ)$$

$$a = \frac{50 \sin(10^\circ)}{\sin(50^\circ)}$$

$$a \approx 11.33$$

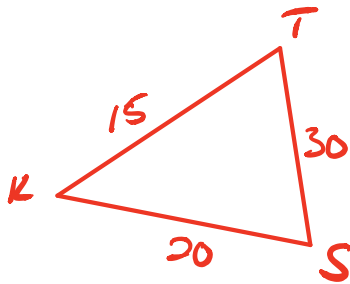
The banana tree is about 11.33 feet from the coconut tree.

# More Trig

Hw Review 10b

Name \_\_\_\_\_

#3) Kenny, Todd, and Sean are playing catch. The three of them form the vertices of a triangle. Kenny is 15' from Todd. Todd is 30' from Sean. Sean is 20' feet from Kenny. What angle is formed at Kenny? (Make a drawing, write the equation, solve)



$$k^2 = t^2 + s^2 - 2ts \cos(m\angle K)$$

$$(30)^2 = (20)^2 + (15)^2 - 2(20)(15) \cos(m\angle K)$$

$$900 = 400 + 225 - 600 \cos(m\angle K)$$

$$900 = 625 - 600 \cos(m\angle K)$$

$$275 = -600 \cos(m\angle K)$$

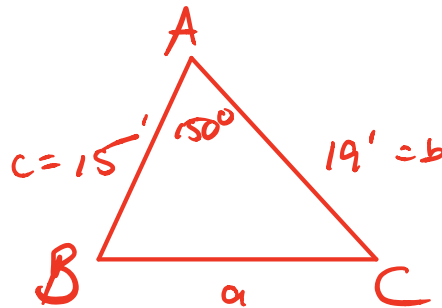
$$\frac{275}{-600} = \cos(m\angle K)$$

$$\cos^{-1}\left(\frac{275}{-600}\right) = m\angle K$$

$$117.28^\circ \approx K$$

The angle formed at Kenny is about  $117.28^\circ$ .

#4) Kisser is not very talented. He made a stepladder using his wood shop. When he sets the ladder up, one side is 15' and the other is 19'. The angle formed by the two sides is  $150^\circ$ . How far apart are the feet of the two sides. (Make a drawing, write the equation, solve)



$$a^2 = b^2 + c^2 - 2bc \cdot \cos(m\angle A)$$

$$a^2 = (19)^2 + (15)^2 - 2(19)(15) \cos(150^\circ)$$

$$a^2 = 361 + 225 - 570 \cos(150^\circ)$$

$$a^2 = 586 - 570 \cos(150^\circ)$$

$$a = \pm \sqrt{586 - 570 \cos(150^\circ)}$$

$$a \approx 32.86$$

The feet of the two sides are about 32.86 feet apart.