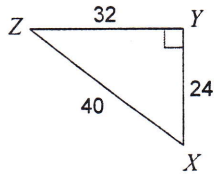


28.1--Tangent Ratio

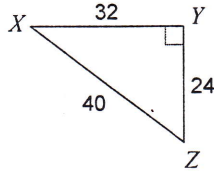
Find the value of each trigonometric ratio. Express answers as a fraction and as a decimal rounded to four places.

1)  $\tan Z$



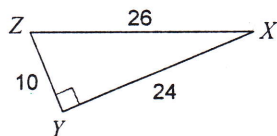
$$\tan Z = \frac{24}{32} = \frac{3}{4} = .75$$

2)  $\tan Z$



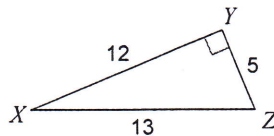
$$\tan Z = \frac{32}{24} = \frac{4}{3} = 1.3333$$

3)  $\tan X$



$$\tan X = \frac{10}{24} = \frac{5}{12} = .4167$$

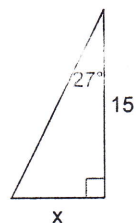
4)  $\tan X$



$$\tan X = \frac{5}{12} = .4167$$

Find the missing side. Round to the nearest tenth.

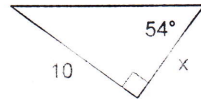
5)



$$\tan 27 = \frac{x}{15}$$

$$x = 7.6$$

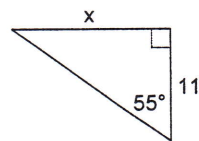
6)



$$\tan 54 = \frac{10}{x}$$

$$x = 7.3$$

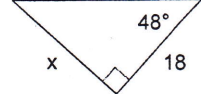
7)



$$\tan 55 = \frac{x}{11}$$

$$x = 15.7$$

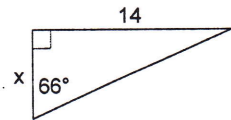
8)



$$\tan 48 = \frac{x}{18}$$

$$x = 20$$

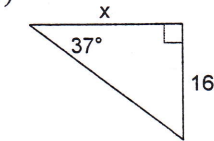
9)



$$\tan 66 = \frac{14}{x}$$

$$x = 6.2$$

10)

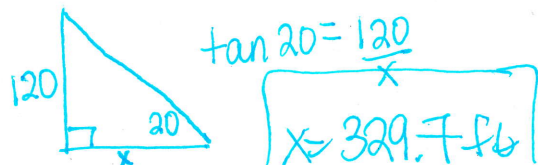


$$\tan 37 = \frac{16}{x}$$

$$x = 21.2$$

First draw a picture to model the situation. Then answer each question.

11) The captain of a boat knows that a lighthouse on the coast is 120 ft tall. If the angle of elevation is  $20^\circ$ , how far is the boat from the lighthouse?



12) Find the tangent of the greater acute angle in a triangle with side lengths of 7 cm, 24 cm, and 25 cm.

