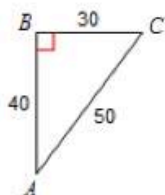# 7.4 Practice Solutions

Directions: Find the value of each trigonometric ratio.

1)

$Cos\ A = \dfrac{40}{50} = \boxed{\dfrac{4}{5}}$

$Tan\ A = \dfrac{30}{40} = \boxed{\dfrac{3}{4}}$
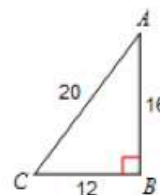
$Sin\ A = \dfrac{30}{50} = \boxed{\dfrac{3}{5}}$

2)

$Cos\ A = \dfrac{16}{20} = \boxed{\dfrac{4}{5}}$

$Tan\ A = \dfrac{12}{16} = \boxed{\dfrac{3}{4}}$
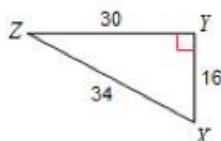
$Sin\ A = \dfrac{12}{20} = \boxed{\dfrac{3}{5}}$

3)

$Cos\ X = \dfrac{16}{34} = \boxed{\dfrac{8}{17}}$

$Tan\ X = \dfrac{30}{16} = \boxed{\dfrac{15}{8}}$

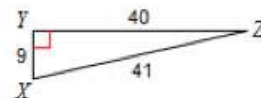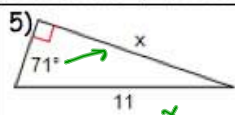$Sin\ X = \dfrac{30}{34} = \boxed{\dfrac{15}{17}}$

4)

$Cos\ Z = \boxed{\dfrac{40}{41}}$

$Tan\ Z = \boxed{\dfrac{9}{40}}$

$Sin\ Z = \boxed{\dfrac{9}{41}}$

Directions: Find the missing side. Round to the nearest tenth.

5)
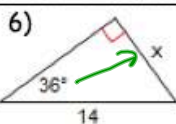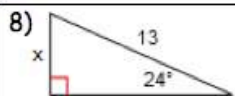
$(11)\ Sin\ 71 = \dfrac{x}{11}\ (11)$

$\boxed{10.4 = X}$

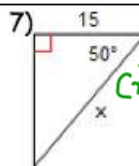**6)**

$(14)\ Sin\ 36 = \dfrac{x}{14}\ (14)$

$\boxed{8.2 = X}$

7)

$(x)Cos\ 50 = \dfrac{15}{x}\ (x)$

$\dfrac{x\ Cos\ 50}{Cos\ 50} = \dfrac{15}{Cos\ 50}$
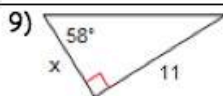
$\boxed{X = 23.3}$

8)

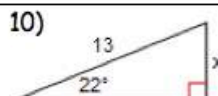$(13)\ Sin\ 24 = \dfrac{x}{13}\ (13)$

$\boxed{5.3 = X}$

9)

$tan\ 58 = \dfrac{11}{x}$

$X = \dfrac{11}{tan\ 58}$

$\boxed{X = 6.9}$

10)

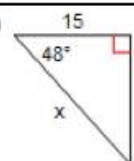$(13)\ Sin\ 22 = \dfrac{x}{13}\ (13)$

$13(Sin\ 22) = X$

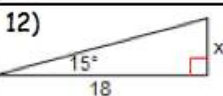$\boxed{4.9 = X}$

11)

$Cos\ 48 = \dfrac{15}{x}$
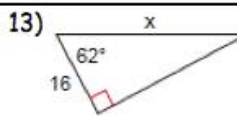
$X = \dfrac{15}{Cos\ 48}$

$\boxed{X = 22.4}$

12)

$(18)\ tan\ 15 = \dfrac{x}{18}\ (18)$

$\boxed{4.8 = X}$

13)

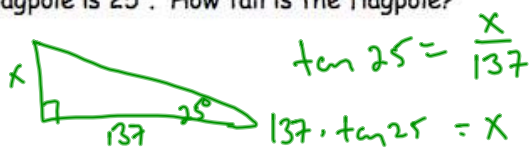$Cos\ 62 = \dfrac{16}{x}$

$X = \dfrac{16}{Cos\ 62}$

$\boxed{X = 34.1}$

Directions: For each situation draw a picture and then solve. Round to the nearest tenth if necessary.

14) A flagpole casts a shadow that is 137 feet long. The angle of elevation between from the end of the shadow to the top of the flagpole is 25°. How tall is the flagpole?

$$\tan 25 = \frac{x}{137}$$

$$137 \cdot \tan 25 = x$$

$$x = 63.9 \text{ feet}$$

15) An archer shoots an arrow with an angle of elevation of 42° at a target that is 50 feet off the ground. How far did the arrow travel in the air?

$$\sin 42 = \frac{50}{x}$$
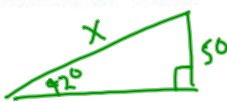
$$\frac{50}{\sin 42} = x$$

$$x = 74.7 \text{ feet}$$

16) An escalator has a vertical rise of 196 feet and rises at an angle of 10.4°. How long is the escalator?

$$\sin 10.4 = \frac{196}{x}$$

$$x = \frac{196}{\sin 10.4}$$

$$x = 1085.8 \text{ ft}$$