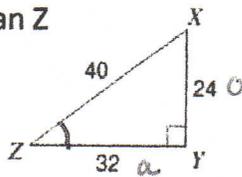


Homework: Tangent Ratio

Name: Solutions

1. Find the value of each tangent ratio:

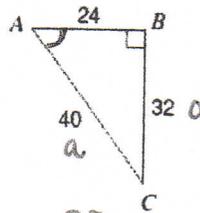
a) $\tan Z$



$$\tan Z = \frac{24}{32}$$

$$= 0.75$$

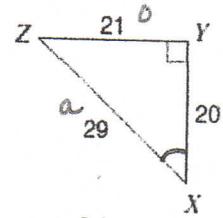
b) $\tan A$



$$\tan A = \frac{32}{40}$$

$$= 0.8$$

c) $\tan X$



$$\tan X = \frac{21}{29}$$

$$= 0.724$$

2. Use your calculator to find each value to four decimal places.

a) $\tan 28^\circ$

$$= 0.5317$$

b) $\tan 36^\circ$

$$= 0.7265$$

c) $\tan 45^\circ$

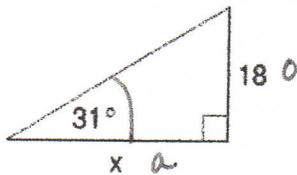
$$= 1$$

d) $\tan 72^\circ$

$$= 3.0777$$

3. Find the length of the unknown side. Round to 1 decimal.

a)



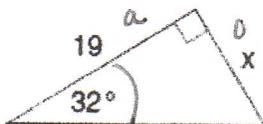
$$\tan 31^\circ = \frac{18}{x}$$

$$\frac{x \tan 31^\circ}{\tan 31^\circ} = \frac{18}{\tan 31^\circ}$$

$$x = 29.957$$

$$x = 30$$

b)

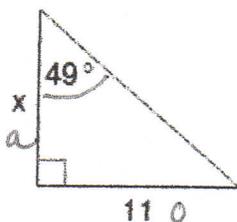


$$\tan 32^\circ = \frac{x}{19}$$

$$19 \tan 32^\circ = x$$

$$11.9 = x$$

c)



$$\tan 49^\circ = \frac{11}{x}$$

$$\frac{x \tan 49^\circ}{\tan 49^\circ} = \frac{11}{\tan 49^\circ}$$

$$x = 9.6$$

Homework: Tangent Ratio

Name: Solutions

Round all answers to 1 decimal place.

4. A helicopter H is hovering over a landing pad P 100 meters from where Grant is standing at G. The helicopter's angle of elevation with the ground is 12° . What is the altitude of the helicopter?

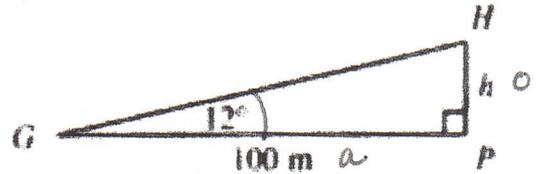
$$\tan 12^\circ = \frac{\text{opp}}{\text{adj}}$$

$$\tan 12^\circ = \frac{h}{100}$$

$$100 \tan 12^\circ = h$$

$$\boxed{21.26 = h}$$

\therefore height of helicopter is 21.26 m.



5. A tree casts a shadow 21 meters long. The angle of elevation of the sun is 51° . What is the height of the tree?

$$\tan 51^\circ = \frac{\text{opp}}{\text{adj}}$$

$$\tan 51^\circ = \frac{h}{21}$$

$$21 \tan 51^\circ = h$$

$$\boxed{25.93 = h}$$

\therefore height of tree is 25.93 m.

