

Chapter 14 Test Review

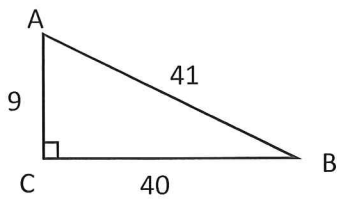
Algebra 2

Inverse Key

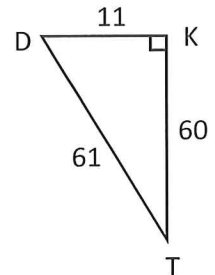
Date _____ Period _____

Write each trigonometric ratio as a fraction.

1. $\sin A = \frac{40}{41}$ $\sin B = \frac{9}{41}$
 $\cos A = \frac{9}{41}$ $\cos B = \frac{40}{41}$
 $\tan A = \frac{40}{9}$ $\tan B = \frac{9}{40}$



2. $\sin T = \frac{11}{61}$ $\sin D = \frac{60}{61}$
 $\cos T = \frac{60}{61}$ $\cos D = \frac{11}{61}$
 $\tan T = \frac{11}{60}$ $\tan D = \frac{60}{11}$



3. Find the following trigonometric ratios on your calculator. Round to 3 decimal places.

a) $\cos 25^\circ = .906$ b) $\sin 64^\circ = .899$ c) $\tan 44^\circ = .966$

4. Solve for the measure of the angle in each trigonometric equation below. Show any algebra steps you use. Round your answers to the nearest tenth.

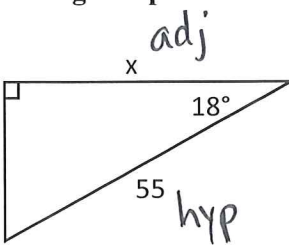
a) $\sin A = 0.6293$ b) $\cos B = 0.3007$ c) $\tan K = 0.3541$
 $A = \sin^{-1}(.6293)$ $B = \cos^{-1}(.3007)$ $K = \tan^{-1}(.3541)$
 $\boxed{39.0^\circ}$ $\boxed{72.5^\circ}$ $\boxed{19.5^\circ}$

5. Use an appropriate trigonometric ratio to find the missing variable. Round to the nearest tenth.

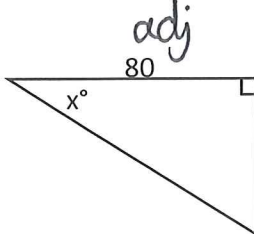
a) $\tan 63 = \frac{x}{32}$
 $1.9626 = \frac{x}{32}$
 $x = (32)(1.9626)$
 $x = \underline{62.8}$

b) $\sin x = \frac{8}{23}$
 $x = \sin^{-1}(\frac{8}{23})$
 $x = \underline{20.4^\circ}$

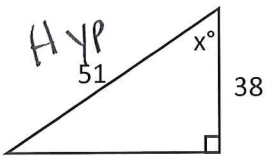
6. Use the figures provided to find the missing variable. Round to the nearest tenth.

a)  $\cos 18 = \frac{x}{55}$
 $\frac{.9511}{1} = \frac{x}{55}$
 $x = (55)(.9511)$

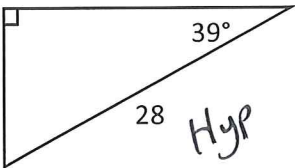
$x = \underline{52.3}$

b)  $\tan X = \frac{46}{80}$
 $X = \tan^{-1}\left(\frac{46}{80}\right)$

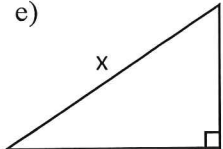
$x = \underline{29.9^\circ}$

c)  $\cos X = \frac{38}{51}$
 $X = \cos^{-1}\left(\frac{38}{51}\right)$

$x = \underline{41.8^\circ}$

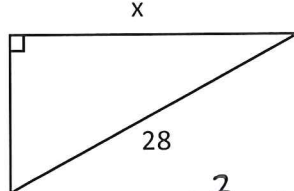
d)  $\sin 39 = \frac{x}{28}$
 $\frac{.6293}{1} = \frac{x}{28}$
 $x = (28)(.6293)$

$x = \underline{17.6}$

e) 

$43^2 + 26^2 = x^2$
 $1849 + 676 = x^2$
 $\sqrt{2525} = \sqrt{x^2}$

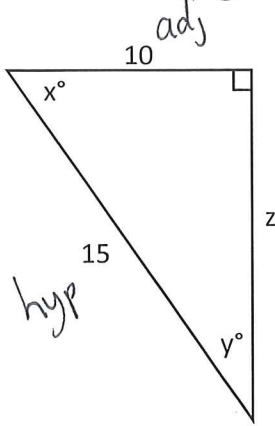
$x = \underline{50.2}$

f) 

$15^2 + x^2 = 28^2$
 $225 + x^2 = 784$
 $-225 \quad -225$
 $\sqrt{x^2} = \sqrt{559}$

$x = \underline{23.6}$

7. Solve the following triangle. Round to the nearest tenth.



$$\cos X = \frac{10}{15}$$

$$X = \cos^{-1}\left(\frac{10}{15}\right)$$

$$X = 48.2$$

$$y = 90 - 48.2$$

$$10^2 + z^2 = 15^2$$

$$100 + z^2 = 225$$

$$\begin{array}{r} -100 \\ \hline z^2 = 125 \end{array}$$

$$\sqrt{z^2} = \sqrt{125}$$

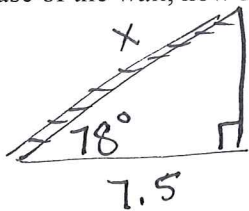
$$x = \underline{48.2}$$

$$y = \underline{41.8}$$

$$z = \underline{11.2}$$

Draw a picture and solve the problem. Round your answer to the nearest tenth.

8. A ladder is leaning against a wall, and it forms a 78° angle with the ground. If the base of the ladder is 7.5 feet from the base of the wall, how long is the ladder?



$$\cos 78 = \frac{7.5}{x}$$

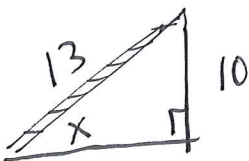
$$\cdot 2079 = \frac{7.5}{x}$$

$$x(.2079) = 7.5$$

$$\cdot 2079 \quad \cdot 2079$$

$$x = 36.1 \text{ ft}$$

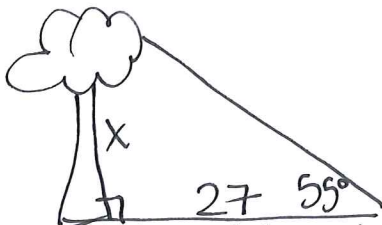
9. A 13 foot ladder leans against a building, it reaches a height of 10 feet above the base of the building. What is the measurement of the angle that the ladder makes with the ground?



$$\sin X = \frac{10}{13}$$

$$X = \sin^{-1}\left(\frac{10}{13}\right) = 50.3^\circ$$

10. A tree casts a shadow on the ground that is 27 feet long. The angle of elevation from the end of the shadow to the top of the tree is 55° . Find the height of the tree.



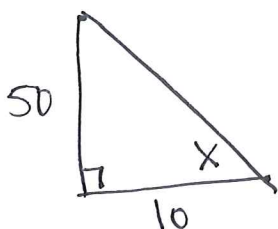
$$\tan 55 = \frac{x}{27}$$

$$1.4281 = \frac{x}{27}$$

$$x = (27)(1.4281)$$

$$x = 38.6 \text{ ft}$$

11. A telephone pole has a wire attached to it 50 feet above the ground. If the other end of the wire is pulled taut and attached to the ground 10 feet from the base of the pole, what is the angle that the wire forms with the ground?



$$\tan X = \frac{50}{10}$$

$$X = \tan^{-1}\left(\frac{50}{10}\right) = 78.7^\circ$$