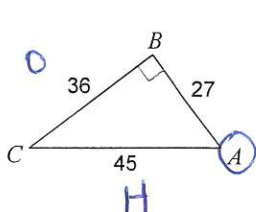


Unit ~~2~~ ³ Review

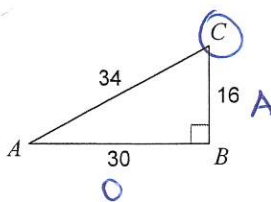
Find the value of each trigonometric ratio to the nearest ten-thousandth.

1) $\sin A$



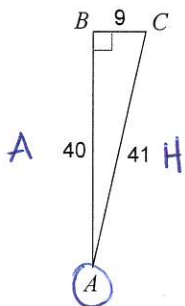
$$\frac{O}{H} = \frac{36}{45} = \boxed{0.8}$$

2) $\tan C$



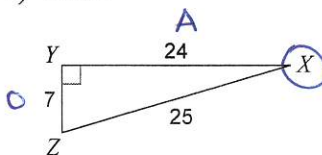
$$\frac{O}{A} = \frac{30}{16} = \boxed{1.875}$$

3) $\cos A$



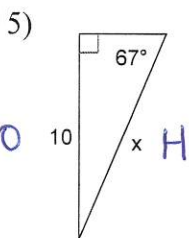
$$\frac{A}{H} = \frac{40}{41} = \boxed{0.9756}$$

4) $\tan X$

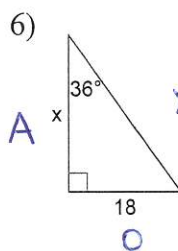


$$\frac{O}{A} = \frac{7}{24} = \boxed{0.2917}$$

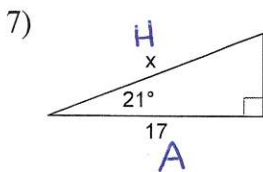
Find the missing side. Round to the nearest tenth.



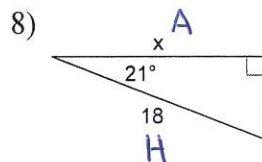
$$\begin{aligned} x \cdot \sin 67 &= \frac{10}{x} \cdot x \\ x \cdot \sin 67 &= 10 \\ \frac{x \cdot \sin 67}{\sin 67} &= \frac{10}{\sin 67} \\ \boxed{X = 10.9} \end{aligned}$$



$$\begin{aligned} x \cdot \tan 36 &= \frac{18}{x} \cdot x \\ x \cdot \tan 36 &= 18 \\ \frac{x \cdot \tan 36}{\tan 36} &= \frac{18}{\tan 36} \\ \boxed{X = 24.8} \end{aligned}$$

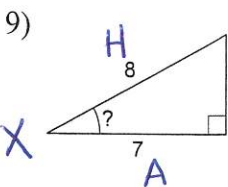


$$\begin{aligned} x \cdot \cos 21 &= \frac{17}{x} \cdot x \\ x \cdot \cos 21 &= 17 \\ \frac{x \cdot \cos 21}{\cos 21} &= \frac{17}{\cos 21} \\ \boxed{X = 18.2} \end{aligned}$$

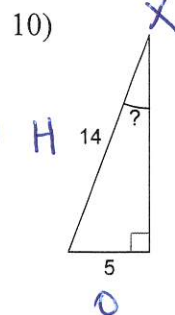


$$\begin{aligned} 18 \cdot \cos 21 &= \frac{x}{18} \cdot 18 \\ 18 \cdot \cos 21 &= x \\ \boxed{16.8 = X} \end{aligned}$$

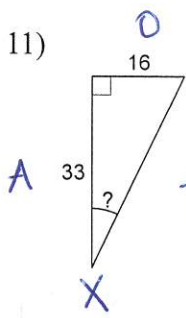
Find the measure of the indicated angle to the nearest degree.



$$\begin{aligned} \cos X &= \frac{7}{8} \\ \cos^{-1}(\cos X) &= \cos^{-1}\left(\frac{7}{8}\right) \\ X &= \cos^{-1}\left(\frac{7}{8}\right) \\ \boxed{X = 29^\circ} \end{aligned}$$



$$\begin{aligned} \sin X &= \frac{5}{14} \\ \sin^{-1}(\sin X) &= \sin^{-1}\left(\frac{5}{14}\right) \\ X &= \sin^{-1}\left(\frac{5}{14}\right) \\ \boxed{X = 21^\circ} \end{aligned}$$

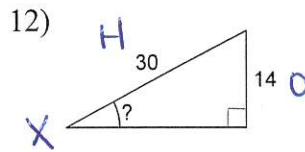


$$\tan X = \frac{16}{33}$$

$$\tan^{-1}(\tan X) = \tan^{-1}\left(\frac{16}{33}\right)$$

$$X = \tan^{-1}\left(\frac{16}{33}\right)$$

$X = 26^\circ$



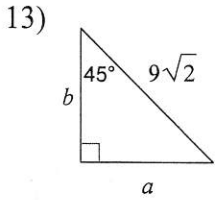
$$\sin X = \frac{14}{30}$$

$$\sin^{-1}(\sin X) = \sin^{-1}\left(\frac{14}{30}\right)$$

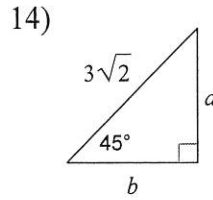
$$X = \sin^{-1}\left(\frac{14}{30}\right)$$

$X = 28^\circ$

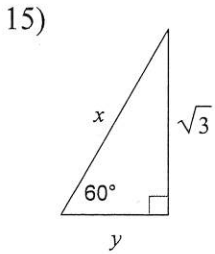
Find the missing side lengths. Leave your answers as radicals in simplest form.



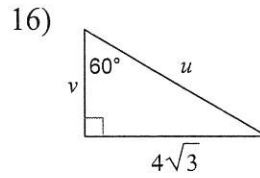
$a = 9$
 $b = 9$



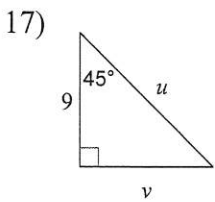
$a = 3$
 $b = 3$



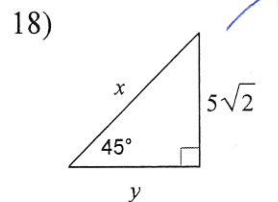
$x = 2$
 $y = 1$



$u = 8$
 $v = 4$



$u = 9\sqrt{2}$
 $v = 9$



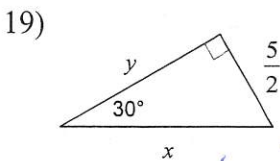
$$\text{hyp} = \text{leg} \cdot \sqrt{2}$$

$$x = 5\sqrt{2} \cdot \sqrt{2}$$

$$= 5\sqrt{4}$$

$$= 5 \cdot 2$$

$x = 10$
 $y = 5\sqrt{2}$



$x = 5$
 $y = \frac{5\sqrt{3}}{2}$

$$\text{long} = \text{short} \cdot \sqrt{3}$$

$$y = \frac{5}{2} \cdot \sqrt{3}$$

$$= \frac{5}{2} \cdot \frac{\sqrt{3}}{1}$$

$$y = \frac{5\sqrt{3}}{2}$$

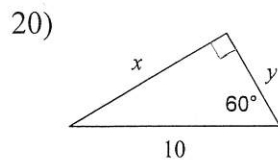
$$\text{hyp} = 2 \cdot \text{short}$$

$$x = 2 \cdot \frac{5}{2}$$

$$x = \frac{2}{1} \cdot \frac{5}{2}$$

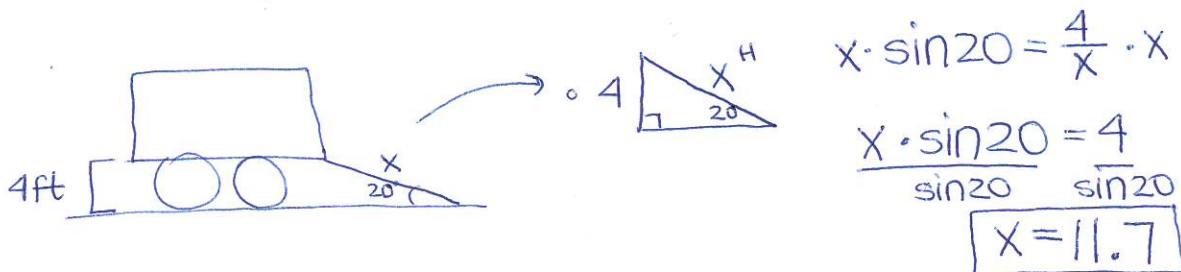
$$x = \frac{10}{2}$$

$$x = 5$$

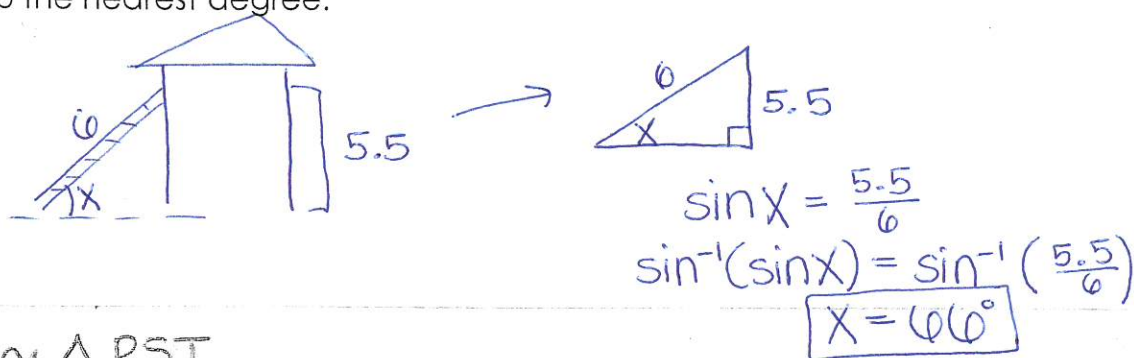


$x = 5\sqrt{3}$
 $y = 5$

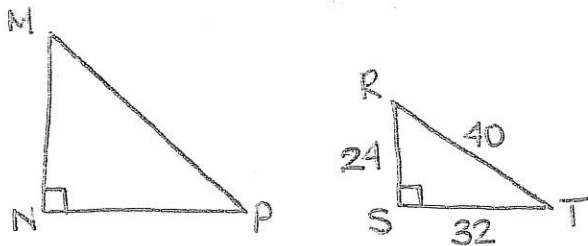
21) The bed of a mover's truck is 4 feet above the ground. The owner of the moving company needs to build a ramp that makes a 20 degree angle with the ground. How long should the ramp be? Find your answer to the nearest tenth.



22) Amy needs to place a 6-meter ladder against a house so that it reaches a height of 5.5 meters. At what angle will she need to place the ladder? Find your answer to the nearest degree.



23) $\triangle MNP \sim \triangle RST$



i) $\tan P = \tan T = \frac{24}{32} = 0.75$

ii) $\cos M = \cos R = \frac{24}{40} = 0.6$

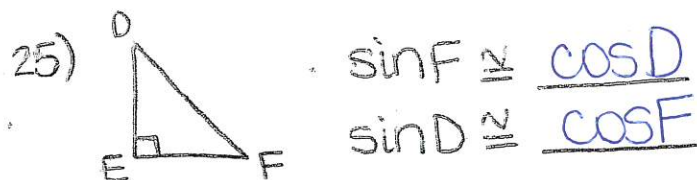
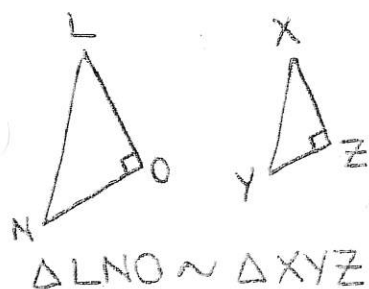
iii) $\sin M = \sin R = \frac{32}{40} = 0.8$

24) $\cos L$ is congruent to what 3 trig ratios?

$\cos L \cong \frac{\cos X}{\sin Y}$

$\cos L \cong \frac{\sin N}{\sin Y}$

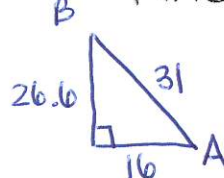
$\cos L \cong \frac{\sin Y}{\sin Y}$



26) $\cos 60^\circ = \sin 30^\circ$

27) In $\triangle ABC$, $\cos A = \frac{16}{31}$.

What is $\tan B$?



$16^2 + x^2 = 31^2$

$x^2 = 705$

$x = 26.6$

$\tan B = \frac{16}{26.6} = 0.6$