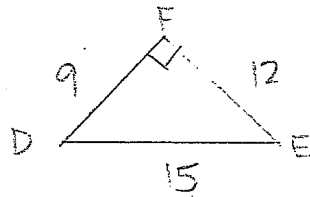
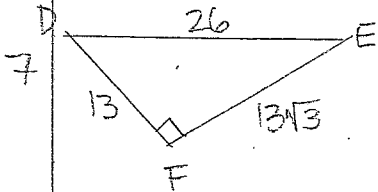


HW #2

3

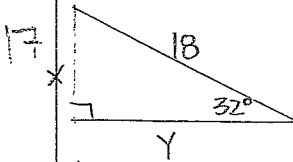


$$\begin{aligned}\sin D &= \frac{12}{15} = 0.8 \\ \cos D &= \frac{9}{15} = 0.6 \\ \sin E &= \frac{9}{15} = 0.6 \\ \cos E &= \frac{12}{15} = 0.8\end{aligned}$$



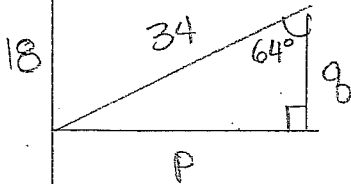
← a 30-60-90 triangle!

$$\begin{aligned}\sin D &= \frac{13\sqrt{3}}{26} = \frac{\sqrt{3}}{2} = 0.8660 \\ \cos D &= \frac{13}{26} = \frac{1}{2} = 0.5 \\ \sin E &= \frac{13}{26} = \frac{1}{2} = 0.5 \\ \cos E &= \frac{13\sqrt{3}}{26} = \frac{\sqrt{3}}{2} = 0.8660\end{aligned}$$



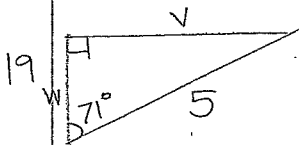
$$\begin{aligned}\sin 32^\circ &= \frac{x}{18} \\ 18 \sin 32^\circ &= x \\ 18 (.5299) &= x \\ \underline{9.5} &= x\end{aligned}$$

$$\begin{aligned}\cos 32^\circ &= \frac{y}{18} \\ 18 \cos 32^\circ &= y \\ 18 (.8480) &= y \\ \underline{15.3} &= y\end{aligned}$$



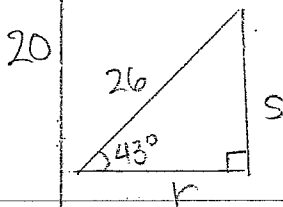
$$\begin{aligned}\sin 64^\circ &= \frac{p}{34} \\ 34 \sin 64^\circ &= p \\ 34 (.8988) &= p \\ \underline{30.6} &= p\end{aligned}$$

$$\begin{aligned}\cos 64^\circ &= \frac{q}{34} \\ 34 \cos 64^\circ &= q \\ 34 (.4384) &= q \\ \underline{14.9} &= q\end{aligned}$$



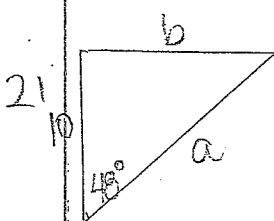
$$\begin{aligned}\sin 71^\circ &= \frac{v}{5} \\ 5 \sin 71^\circ &= v \\ 5 (.9455) &= v \\ \underline{4.7} &= v\end{aligned}$$

$$\begin{aligned}\cos 71^\circ &= \frac{w}{5} \\ 5 \cos 71^\circ &= w \\ 5 (.3256) &= w \\ \underline{1.6} &= w\end{aligned}$$



$$\begin{aligned}\cos 43^\circ &= \frac{r}{26} \\ 26 \cos 43^\circ &= r \\ 26 (.7314) &= r \\ \underline{19.0} &= r\end{aligned}$$

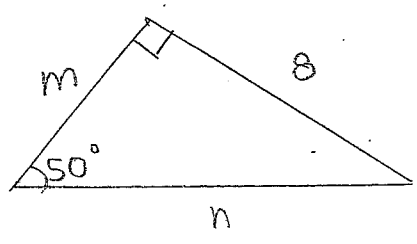
$$\begin{aligned}\sin 43^\circ &= \frac{s}{26} \\ 26 \sin 43^\circ &= s \\ 26 (.6820) &= s \\ \underline{17.7} &= s\end{aligned}$$



$$\begin{aligned}\cos 48^\circ &= \frac{10}{a} \\ a \cos 48^\circ &= 10 \\ a &= \frac{10}{\cos 48^\circ} = \frac{10}{.6691} = \boxed{14.9}\end{aligned}$$

$$\begin{aligned}\sin 48^\circ &= \frac{b}{a} = \frac{b}{14.9} \\ 14.9 \sin 48^\circ &= b \\ 14.9 (.7431) &= b \\ \underline{11.1} &= b\end{aligned}$$

22)



$$\sin 50^\circ = \frac{8}{n}$$

$$n \sin 50^\circ = 8$$

$$n = \frac{8}{\sin 50^\circ} = \frac{8}{.7660}$$

$$\underline{n = 10.4}$$

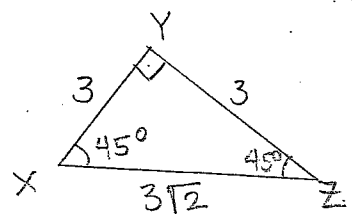
$$\cos 50^\circ = \frac{m}{n} = \frac{m}{10.4}$$

$$10.4 \cos 50^\circ = m$$

$$10.4 (0.6428) = m$$

$$\underline{6.7 = m}$$

23)



a 45-45-90  $\triangle$ !

$$\sin X = \frac{3}{3\sqrt{2}} \left( \frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{\sqrt{2}}{2}$$

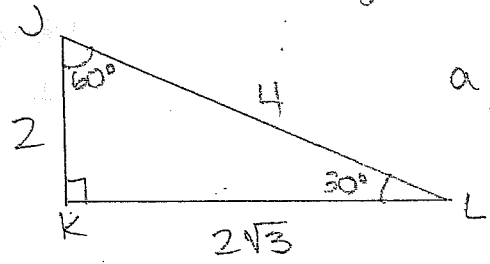
$$\cos X = \frac{3}{3\sqrt{2}} \left( \frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{\sqrt{2}}{2}$$

$$\sin Z = \frac{3}{3\sqrt{2}} \left( \frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{\sqrt{2}}{2}$$

$$\cos Z = \frac{3}{3\sqrt{2}} \left( \frac{\sqrt{2}}{\sqrt{2}} \right) = \frac{\sqrt{2}}{2}$$

all ratios are =

24) Which ratios equal  $\frac{1}{2}$ ?



a 30-60-90  $\triangle$ !

$$\cos L = \frac{2\sqrt{3}}{4} = \frac{\sqrt{3}}{2}$$

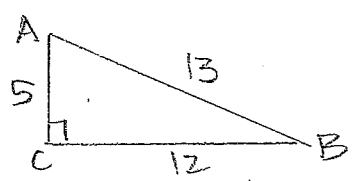
$$\cos 30^\circ = \frac{\sqrt{3}}{2}$$

$\cos J = \frac{2}{4} = \frac{1}{2}$   
 $\cos 60^\circ = \frac{1}{2}$

$\sin L = \frac{2}{4} = \frac{1}{2}$   
 $\sin 30^\circ = \frac{1}{2}$

$\sin J = \frac{2\sqrt{3}}{4} = \frac{\sqrt{3}}{2}$   
 $\sin 60^\circ = \frac{\sqrt{3}}{2}$

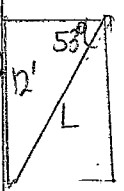
25)



~~$\sin A = \frac{5}{13}$~~

$\sin A = \frac{\text{OPP}}{\text{HYPOT}} = \frac{12}{13}$

27)

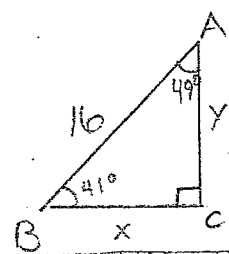


$$\sin 53^\circ = \frac{12}{L}$$

$$L \sin 53^\circ = 12$$

$$L = \frac{12}{\sin 53^\circ} = \frac{12}{.7986} = \underline{15'}$$

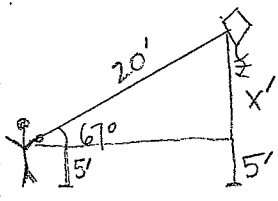
3)



$\sin 49^\circ = \frac{x}{16}$   
 $\cos 41^\circ = \frac{x}{16}$

both are correct.  
 $\sin$  of  $49^\circ = \cos 41^\circ$   
 $.7547 = .7547$

29)



$$\sin 67^\circ = \frac{x}{20}$$

$$20 \sin 67^\circ = x$$

$$20 (.9205) = x$$

$$18.4' = x$$

Height from ground =  $x + 5 = 18.4 + 5 = 23.4'$