2.6/2.7 Applying the Trig. Ratios & Solving Problems

October-02-13
11:00 AM

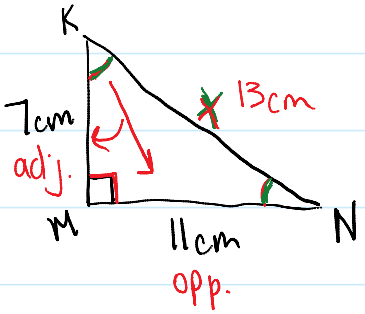
Solve triangles Δ → find all $\angle$.
→ find all sides

* see data book *

SOH CAH TOA

$\sin\angle = \frac{\text{opp.}}{\text{hyp.}}$ $\cos\angle = \frac{\text{adj.}}{\text{hyp}}$ $\tan\angle = \frac{\text{opp}}{\text{adj.}}$

Ex. #1



pythagorean $a^2 + b^2 = c^2$

$7^2 + 11^2 = c^2$

$49 + 121 = c^2$

$c =$ 13 cm | side KN

$\angle K$

$\tan\angle K = \frac{O}{A}$

$\tan\angle K = \frac{11}{7}$

$\tan\angle K = 1.57$

$\tan^{-1}(1.57) = \angle K$

$57.5° = \angle K$

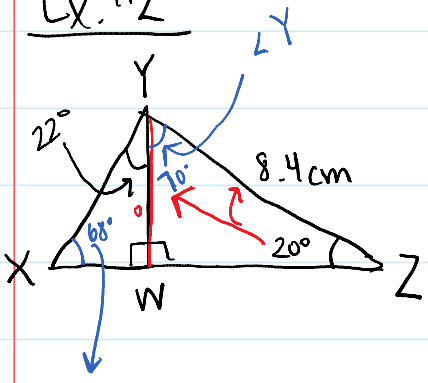
$57.5° = \angle K$

$\approx \boxed{58° = \angle K}$ to the nearest degree

$\angle N$

$180° - 90° - 58° = \boxed{32°}$

Ex. #2



$\angle Y$

$\angle Y \Rightarrow 180 - 90 - 20 = 70°$

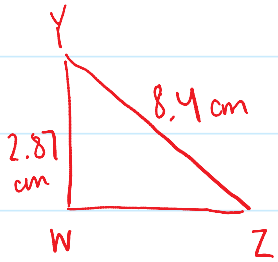
$\angle X \Rightarrow 180 - 90 - 22 = 68°$

YW $\quad \sin 20° = \frac{o}{h}$

$\sin 20° = \frac{x}{8.4\text{cm}}$

$(8.4)(\sin 20°) = x$

$\boxed{2.87\text{cm} = x}$



$a^2 + b^2 = c^2$

$2.87^2 + b^2 = 8.4^2$

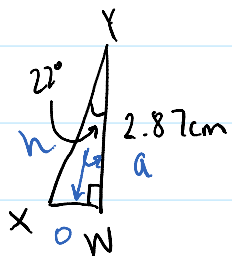
$b^2 = 8.4^2 - 2.87^2$

$\sqrt{b^2} = \sqrt{64.32}$

$\boxed{b = 7.89\text{ cm}}$

Length of XY

Length of XY



$$\cos 22^\circ = \frac{a}{h}$$

$$\frac{\cos 22^\circ}{1} \overset{\times}{=} \frac{2.87}{x}$$

$$\frac{(x)(\cos 22^\circ)}{(\cos 22^\circ)} = \frac{2.87}{(\cos 22^\circ)}$$

$$x = 3.09\text{ cm}$$

Exercises pg. 111 #4-7, 12 Quiz tomorrow!!