8.2, 8.3 Recap Homework Key

Pg. 561 #8-20

SOH CAH TOA

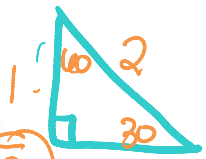
8-2 Trigonometric Ratios

Use a special right triangle to write each trigonometric ratio as a fraction.

8. $\tan 45°$ — $1, \sqrt{2}$ → $\frac{1}{1} = 1$

9. $\sin 30°$ → $\frac{O}{H} = \frac{1}{2}$

10. $\cos 30°$ → $\frac{A}{H} = \frac{\sqrt{3}}{2}$



Use your calculator to find each trigonometric ratio. Round to the nearest hundredth.

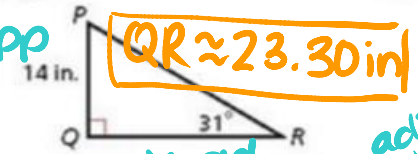
11. $\sin 16° \approx 0.28$

12. $\cos 79° \approx 0.19$

13. $\tan 27° \approx 0.51$

Find each length. Round to the nearest hundredth.

14. QR

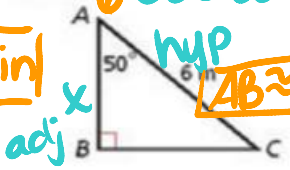


(14) $\tan(31) = \frac{14}{x}$ opp / adj

$x = \frac{14}{\tan 31}$

$QR \approx 23.30$ in

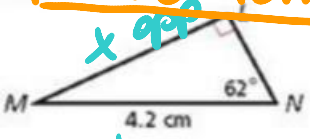
15. AB



$\cos 50 = \frac{x}{6}$ adj / hyp

$AB \approx 3.86$ cm

16. LM



$LM \approx 3.71$ cm

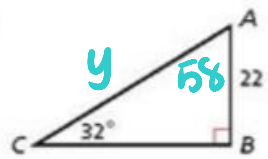
$\sin 62 = \frac{x}{4.2}$ opp / hyp

$4.2 \cdot \sin(62) = x$

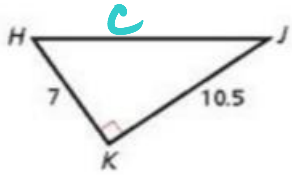
8-3 Solving Right Triangles

Find the unknown measures. Round lengths to the nearest hundredth and angle measures to the nearest degree.

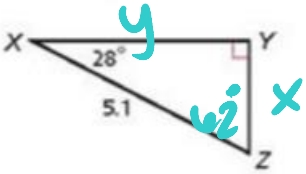
17.



18.

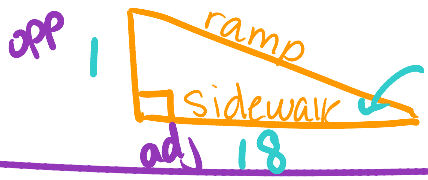


19.



20. The wheelchair ramp at the entrance of the Mission Bay Library has a slope of $\frac{1}{18}$. What angle does the ramp make with the sidewalk? Round to the nearest degree.

$\frac{1}{18} = \frac{\text{rise}}{\text{run}} = \frac{\text{height}}{\text{length of sidewalk}}$



$\tan x = \frac{1}{18}$

$x = \tan^{-1}\left(\frac{1}{18}\right)$

$x = 3°$

(17) $m\angle A = 58°$

$\tan 32 = \frac{22}{x}$

$x = \frac{22}{\tan 32} \approx 35.21$

$BC \approx 35.21$

$\sin 32 = \frac{22}{y}$

$y = \frac{22}{\sin 32} \approx 41.52$

$AC \approx 41.52$

(18) $7^2 + 10.5^2 = c^2$

$\sqrt{159.25} = \sqrt{c^2}$

$c \approx 12.62$

$HJ \approx 12.62$

$\tan H = \frac{10.5}{7}$

$H = \tan^{-1}\left(\frac{10.5}{7}\right)$

$m\angle H \approx 56°$

$\tan J = \frac{7}{10.5}$

$J = \tan^{-1}\left(\frac{7}{10.5}\right)$

$m\angle J \approx 34°$

(19) $m\angle Z = 62°$

$\sin 28 = \frac{x}{5.1}$

$x \approx 5.1 \cdot \sin(28)$

$YZ \approx 2.39$

$\cos 28 = \frac{y}{5.1}$

$y = 5.1 \cos 28$

$XY \approx 4.50$