

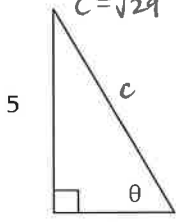
Name: _____

Date: Key

B.0 - Right Triangle Trigonometry Worksheet

1) Find the hypotenuse for each triangle, then find the three trig ratios as a fraction and decimal (to the nearest thousandth) for each triangle. Then find the unknown angle for each (to the nearest degree).

a) $2^2 + 5^2 = c^2$
 $4 + 25 = c^2$
 $29 = c^2$
 $c = \sqrt{29}$

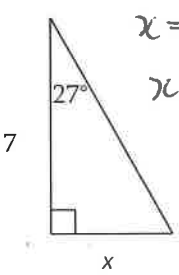


$\theta = 68^\circ$

$\tan \theta = \frac{5}{2} = 2.5$ $\sin \theta = \frac{5}{\sqrt{29}} = \frac{5\sqrt{29}}{29} = 0.928$
 $\cos \theta = \frac{2}{\sqrt{29}} = \frac{2\sqrt{29}}{29} = 0.371$

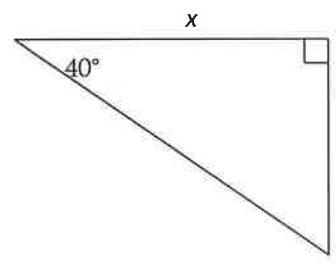
2) Find x to the nearest tenth.

a) $\tan 27^\circ = \frac{x}{7}$



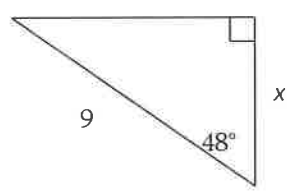
$x = 7 \tan 27^\circ$
 $x = 3.6$

b) $\tan 40^\circ = \frac{24}{x}$



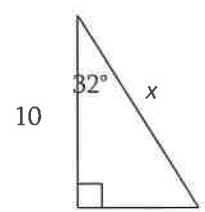
$x = \frac{24}{\tan 40^\circ}$
 $x = 28.6$

c) $\cos 48^\circ = \frac{x}{9}$



$x = 9 \cos 48^\circ$
 $x = 6.0$

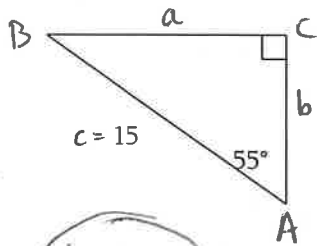
d) $\cos 32^\circ = \frac{10}{x}$



$x = \frac{10}{\cos 32^\circ}$
 $x = 11.8$

3) Solve the following triangles to the nearest tenth.

a) $\begin{array}{l|l} \angle A = 55^\circ & a = \\ \angle B = & b = \\ \angle C = 90^\circ & c = 15 \end{array}$



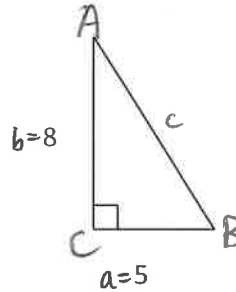
$\angle B = 35^\circ$
 $a = 12.3$
 $b = 8.6$

$\angle B$
 $180 - 90 - 55$
 $\angle B = 35^\circ$

side a:
 $\sin 55^\circ = \frac{a}{15}$
 $a = 15 \sin 55^\circ = 12.29$
 $= 12.3$

side b:
 $\cos 55^\circ = \frac{b}{15}$
 $b = 15 \cos 55^\circ$
 $b = 8.6$

b) $\begin{array}{l|l} \angle A = & a = 5 \\ \angle B = & b = 8 \\ \angle C = 90^\circ & c = \end{array}$



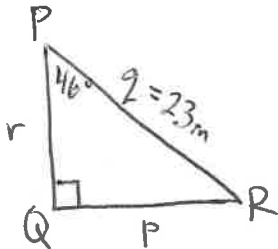
$\angle A = 32^\circ$
 $\angle B = 58^\circ$
 $c = 9.4$

$\tan A = \frac{5}{8}$
 $\angle A = \tan^{-1} \frac{5}{8} = 32^\circ$

$\angle B = 180 - 90 - 32 = 58^\circ$

side c:
 $5^2 + 8^2 = c^2$
 $25 + 64 = c^2$
 $89 = c^2$
 $c = \sqrt{89} = 9.4$

4) Sketch and solve ΔPQR : $\angle P = 46^\circ$, $\angle Q = 90^\circ$, & $q = 23\text{m}$



$\begin{array}{l|l} \angle P = 46^\circ & p = \\ \angle Q = 90^\circ & q = 23\text{m} \\ \angle R = & r = \end{array}$

$\angle R$:
 $180 - 90 - 46$
 $\angle R = 44^\circ$

$\sin 46^\circ = \frac{p}{23}$
 $p = 23 \sin 46^\circ$
 $p = 16.545\text{m}$

$\cos 46^\circ = \frac{r}{23}$
 $r = 23 \cos 46^\circ$
 $r = 15.977\text{m}$

$\angle R = 44^\circ$
 $p = 16.5\text{m}$
 $r = 16.0\text{m}$

*In the text, do p.257 #1acegi, 2aceg