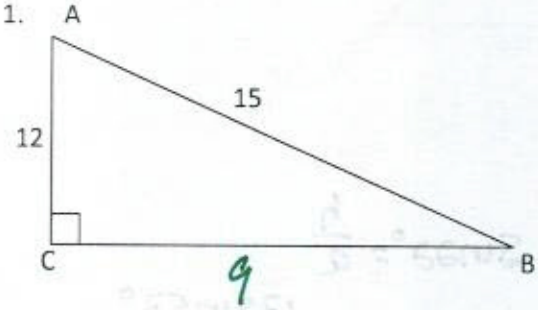
Right Triangle Trig: Additional Problems Name Key

Find the value for the Trigonometric Ratios. Simplify (**do not calculate**!!) fractions where necessary.

1.



sin A = $\frac{9}{15} = \frac{3}{5}$

cos A = $\frac{12}{15} = \frac{4}{5}$

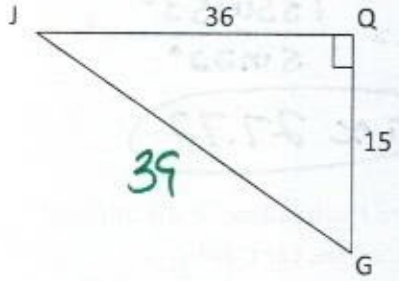
tan A = $\frac{9}{12} = \frac{3}{4}$

sin B = $\frac{12}{15} = \frac{4}{5}$

cos B = $\frac{9}{15} = \frac{3}{5}$

tan B = $\frac{12}{9} = \frac{4}{3}$

2.



sin J = $\frac{15}{39} = \frac{5}{13}$

cos J = $\frac{36}{39} = \frac{12}{13}$

tan J = $\frac{15}{36} = \frac{5}{12}$

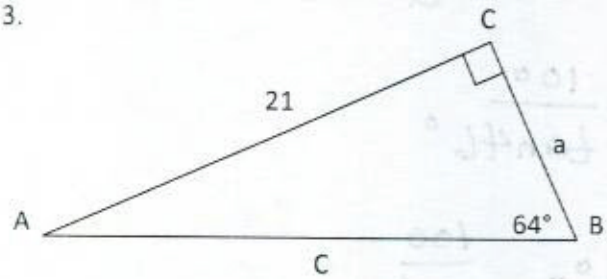
sin G = $\frac{36}{39} = \frac{12}{13}$

cos G = $\frac{15}{39} = \frac{5}{13}$

tan G = $\frac{36}{15} = \frac{12}{5}$

Solve for the missing side lengths (to the nearest hundredth) and angle measures (to the nearest tenth of a degree).

3.



A = 26°

a = 10.24

c = 23.36

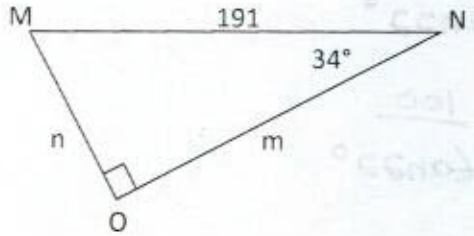
$\tan 64° = \frac{21}{a}$

$a = \frac{21}{\tan 64°} \approx$

$\sin 64° = \frac{21}{c}$

$c = \frac{21}{\sin 64°}$

4.



M = 56°

m = 158.35

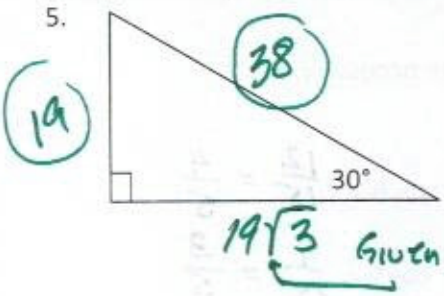
n = 106.81

$\cos 34° = \frac{m}{191}$ $m = 191 \cos 34° \approx 158.35$

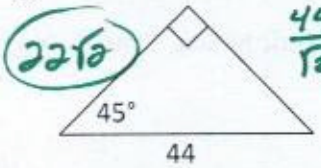
$\sin 34° = \frac{n}{191}$ $n = 191 \sin 34° \approx 106.81$

Find the missing side lengths. Leave your answers in **simplest radical form**.

5.

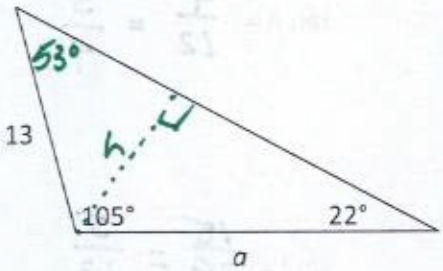


6.



$\frac{44}{\sqrt{2}} = \frac{44\sqrt{2}}{2} = 22\sqrt{2}$

6. Find the length of side a.



$\sin 53° = \frac{h}{13}$

$h = 13\sin 53°$

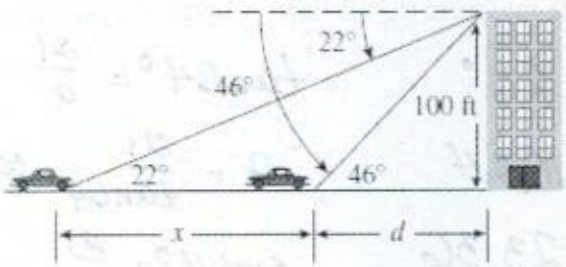
$\sin 22° = \frac{h}{a}$

$\sin 22° = \frac{13\sin 53°}{a}$

$a = \frac{13\sin 53°}{\sin 22°}$

$a \approx 27.72$

7. From the top of the 100-foot tall Altgelt Hall a man observes a car moving toward the building. If the angle of depression to the car changes from 22° to 46° during the observation, how far does the car travel?



$\tan 46° = \frac{100}{d}$

$d = \frac{100}{\tan 46°}$

$\tan 22° = \frac{100}{x+d}$

$x + d = \frac{100}{\tan 22°}$

$x + \frac{100}{\tan 46°} = \frac{100}{\tan 22°}$

$x = \frac{100}{\tan 22°} - \frac{100}{\tan 46°}$

$x \approx 150.94$ ft