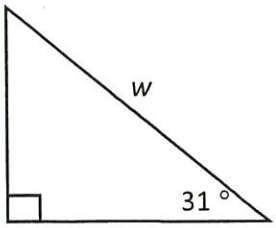
Name: Key

4.1 (day 1)

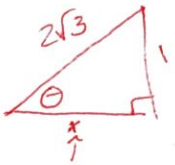
1) Solve for the missing side:



$\cos 31° = \frac{10}{w}$

$w = 11.67$

2) Given the cosecant of θ in a right triangle is $2\sqrt{3}$, find the exact other 5 trig functions.



$1^2 + x^2 = (2\sqrt{3})^2$

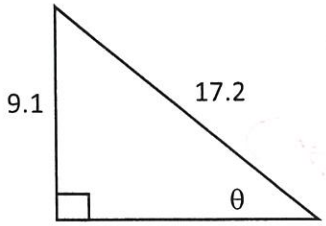
$x = \sqrt{11}$

$\csc\theta = \frac{2\sqrt{3}}{1}$ $\quad \sin\theta = \frac{1}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{3}}{6}$

$\sec\theta = \frac{2\sqrt{3}}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}} = \frac{2\sqrt{33}}{11}$ $\quad \cos\theta = \frac{\sqrt{11}}{2\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \frac{\sqrt{33}}{6}$

$\cot\theta = \frac{\sqrt{11}}{1}$ $\quad \tan\theta = \frac{1}{\sqrt{11}} \cdot \frac{\sqrt{11}}{\sqrt{11}} = \frac{\sqrt{11}}{11}$

3) Solve for θ. Round to the nearest tenth.

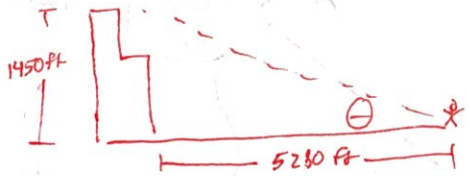


$\sin\theta = \frac{9.1}{17.2}$

$\sin^{-1}\left(\frac{9.1}{17.2}\right) = \theta$

$31.9° = \theta$

4) Willis Tower stands approximately 1,450 ft. If you're standing a mile east from it on the shores of Lake Michigan, what is the angle created from your eye to top?



$\tan\theta = \frac{1450}{5280}$

$\theta = 15.36°$

Name: _____

4.1 (day 1)

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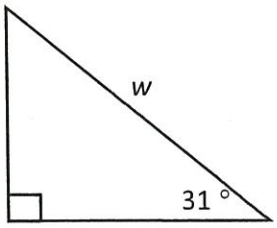
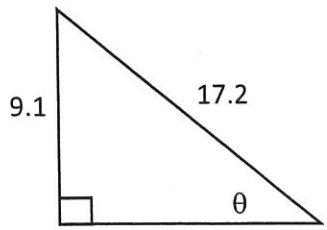


2) Given the cosecant of θ in a right triangle is $2\sqrt{3}$, find the exact other 5 trig functions.

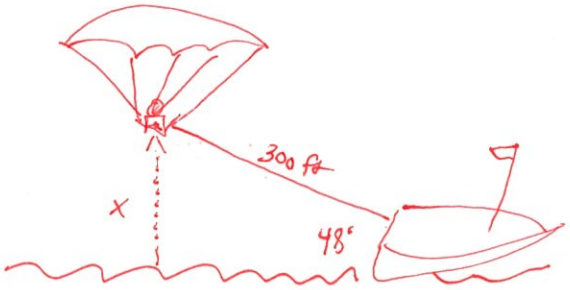
3) Solve for θ. Round to the nearest tenth.



4) Willis Tower stands approximately 1,450 ft. If you're standing a mile east from it on the shores of Lake Michigan, what is the angle

4.1 (day 2)

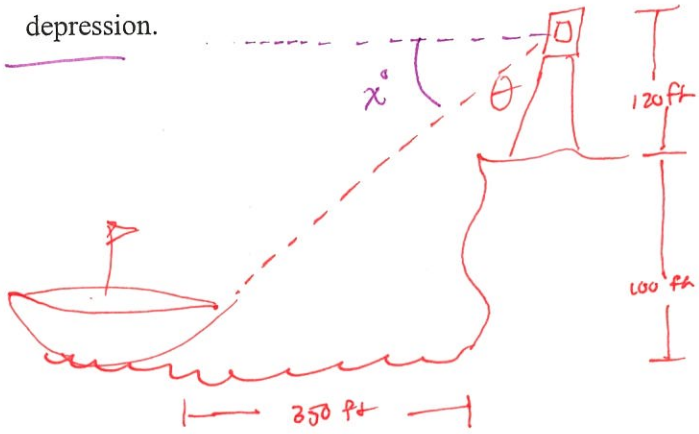
5) A parasailer is attached to a boat with a rope 300 ft. long. The angle of elevation from the boat to the parasailer is 48°. Estimate the parasailer's height above the boat.



$\sin 48° = \frac{x}{300}$

$x = 222.94$ ft

6) In a light house, on a 100 ft. cliff stand 120 ft. high. A boat is sited 350 ft. from shore. Determine the angle of depression.



$\tan^{-1}\left(\frac{350}{220}\right) = \theta$

$\theta = 57.85°$

$90° - 57.85°$

$x = 32.15°$

4.1 (day 2)

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