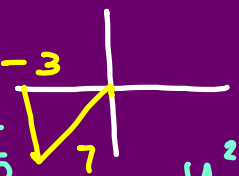
$\sin\theta = \frac{y}{r}$ $\quad \csc\theta = \frac{r}{y}$

$\cos\theta = \frac{x}{r}$ $\quad \sec\theta = \frac{r}{x}$

$\tan\theta = \frac{y}{x}$ $\quad \cot\theta = \frac{x}{y}$

If $\cos\theta = \frac{-3}{7}$ $\frac{x}{r}$ + $\cot\theta > 0$ find $\csc\theta$.



$\csc\theta = \frac{r}{y}$

$y^2 + (-3)^2 = 7^2$

$y^2 + 9 = 49$

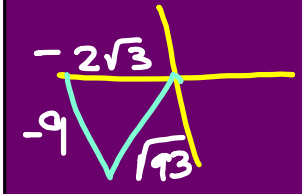
$\sqrt{y^2} = \sqrt{40}$ $4 \cdot 10$

$y = \pm 2\sqrt{10}$

$\csc\theta = \frac{7}{-2\sqrt{10}}$ $\sqrt{10}$

$= \boxed{-\frac{7\sqrt{10}}{20}}$

Given $\tan\theta = \frac{9}{2\sqrt{3}}$ $\frac{y}{x}$ + $\sin\theta < 0$, find $\sec\theta$.



$(-9)^2 + (-2\sqrt{3})^2 = r^2$ $\quad 9 \cdot 3$

$81 + 12 = r^2$

$\sqrt{93} = \sqrt{r^2}$

$\sqrt{93} = r$

$\sec\theta = \frac{r}{x}$

$= \frac{\sqrt{93}}{-2\sqrt{3}}$

$= \boxed{-\frac{\sqrt{31}}{2}}$

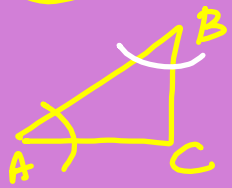
Solving Right Δ's

soh cah toa

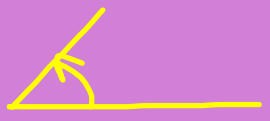
$\sin A = \frac{opp}{hyp}$

$\cos A = \frac{adj}{hyp}$

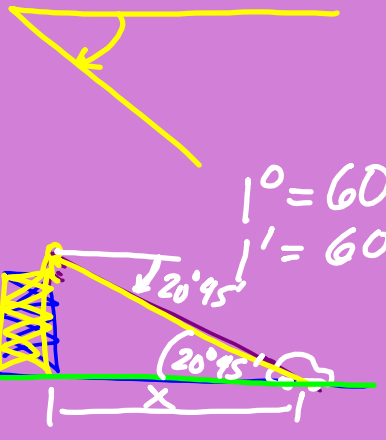
$\tan A = \frac{opp}{adj}$



Angle of elevation



Angle of Depression



The angle of depression from the top of the tower to the car is is 20°45'. How far is the car from the base of the tower?

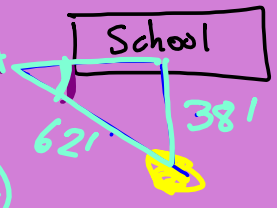
soh cah toa

$x \cdot \tan 20°45' = \frac{108}{x}$

$x = \frac{108}{\tan 20°45'} \approx 285.06$

$= \boxed{285 \text{ ft}}$

A gold deposit has been located 38' directly under NCHS. If the length of the diagonal tunnel will be 62', what is the angle of depression?



$\sin A = \frac{38}{62}$

$\sin^{-1}(38/62)$

$\approx \boxed{38°}$

If need Deg/Min/Sec:

Book

Press "D"

▶ DMS