

Warm-up: add on to the beginning of today's assignment:

Solve without a calculator,
use special triangles:

$$\left(\cos \frac{\pi}{6} + \sin \frac{\pi}{6} \right)^2$$

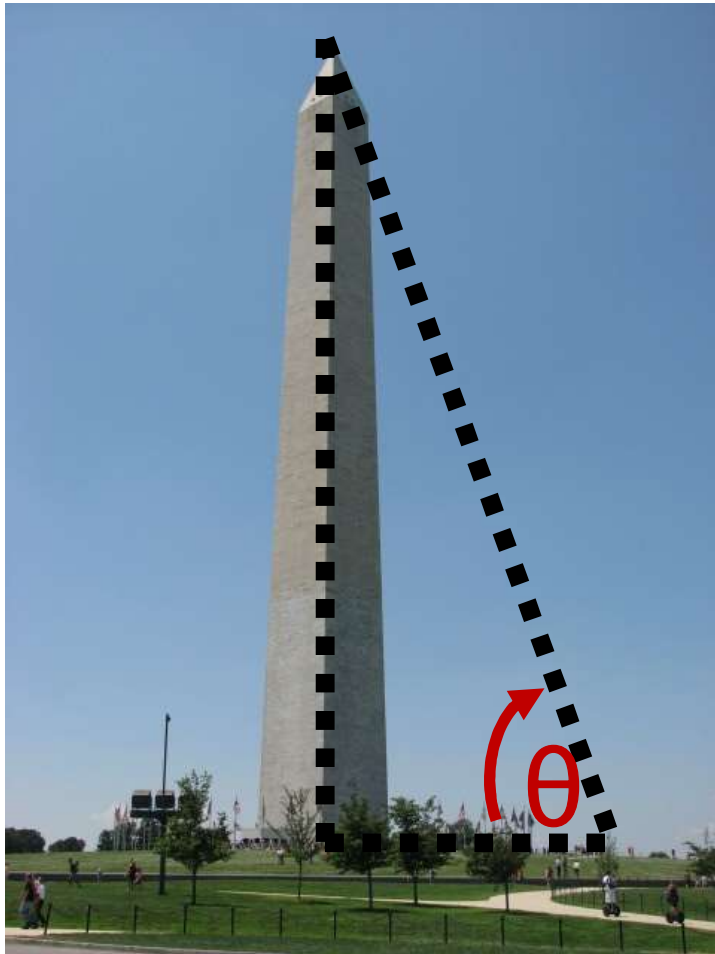
$$\left(\quad + \quad \right)^2 = \left(\frac{\quad + \quad}{\quad} \right)^2 = \left(\quad \right) \left(\quad \right)$$

=

Solution: $\frac{2 + \sqrt{3}}{2}$

show all steps!!

Angle of Elevation:



Angle of Descent or Angle of Depression:



#30,32,34: use values from special triangles

θ in degrees	θ in radians	$\sin \theta$	$\cos \theta$	$\tan \theta$	$\csc \theta$	$\sec \theta$	$\cot \theta$
30°	$\frac{\pi}{6}$	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{3}}{3}$	2	$\frac{2\sqrt{3}}{3}$	$\sqrt{3}$
45°	$\frac{\pi}{4}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{2}}{2}$	1	$\sqrt{2}$	$\sqrt{2}$	1
60°	$\frac{\pi}{3}$	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$	$\sqrt{3}$	$\frac{2\sqrt{3}}{3}$	2	$\frac{\sqrt{3}}{3}$

Note: $\sin 30^\circ = \cos 60^\circ$
 $\sin 45^\circ = \cos 45^\circ$
 $\sin 60^\circ = \cos 30^\circ$
 $\sin 10^\circ = \cos 80^\circ$

$\tan 30^\circ = \cot 60^\circ$
 $\tan 45^\circ = \cot 45^\circ$
 $\tan 60^\circ = \cot 30^\circ$

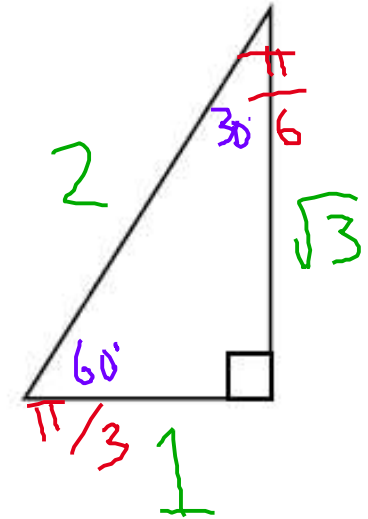
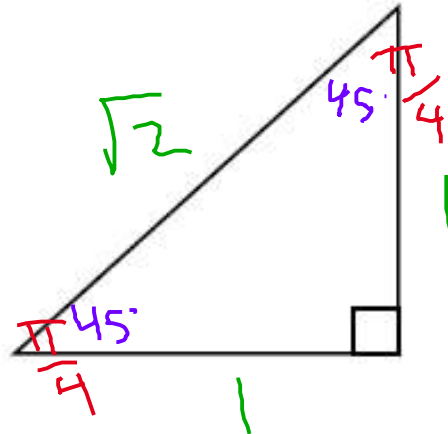
$\sec 30^\circ = \csc 60^\circ$
 $\sec 45^\circ = \csc 45^\circ$
 $\sec 60^\circ = \csc 30^\circ$
 $\sec 15^\circ = \csc 75^\circ$

Complementary angles add to 90°
 (equal ratios)

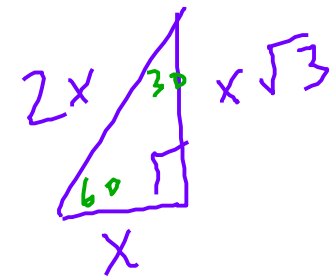
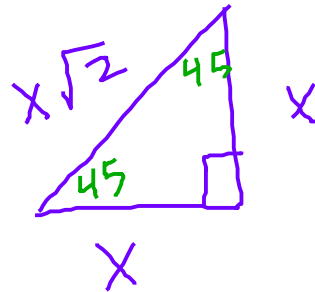
Special Triangles

$30^\circ - 60^\circ - 90^\circ$

$45^\circ - 45^\circ - 90^\circ$



Use special triangle ratios for #47,48,50



62. Determining a Distance An airplane is flying at an elevation of 5150 ft, directly above a straight highway. Two motorists are driving cars on the highway on opposite sides of the plane. The angle of depression to one car is 35° , and that to the other is 52° . How far apart are the cars?

