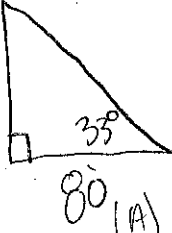


1. Lil' Wayne wants to measure the height of a tree. He walks exactly 80 feet from the base of the tree and looks up. The angle of elevation from the ground to the top of the tree is  $33^\circ$ . How tall is the tree?

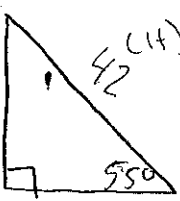
(0)  $x$



$\tan(33) = \frac{x}{80}$   
 $x = 80 \tan(33)$   
 $x = 51.95 = 52$  ft.

2. T.I. is sitting on top of a lamppost. The angle of depression from the T.I. to the feet of Kid Cudi standing away from the lamppost is  $55^\circ$ . The distance from the T.I. to Kid Cudi is 42 meters. How tall is the lamppost?

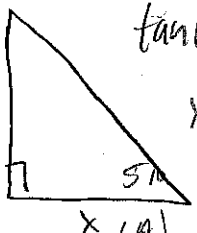
(0)  $x$



$\sin(55) = \frac{x}{42}$   
 $x = 42 \sin(55)$   
 $x =$

3. A building is 100 feet high. At some unknown distance away from the building, Gucci Mane notices that the angle of elevation to the top of the building is  $51^\circ$ . How far is Gucci Mane from the base of the building?

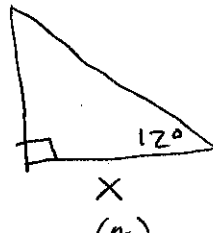
(0) 100



$\tan(51) = \frac{100}{x}$   
 $x = \frac{100}{\tan(51)}$   
 $x =$

4. Snoop Dogg is in a 55-foot tall lighthouse and spots a ship in distress at an angle of depression of  $12^\circ$ . How far is the ship from shore?

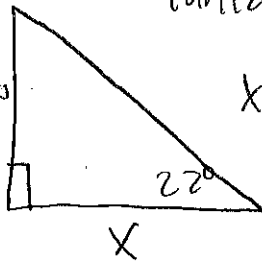
(0) 55



$\tan(12) = \frac{55}{x}$   
 $x = \frac{55}{\tan(12)}$   
 $x =$

5. A jet is flying at an altitude of 20,000 feet. Chainz measures the angle of elevation to the plane to be  $22^\circ$ . Find the horizontal distance of the plane from the airport.

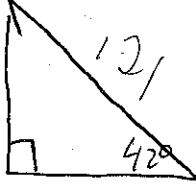
(0) 20000



$\tan(22) = \frac{20000}{x}$   
 $x = \frac{20000}{\tan(22)}$   
 $x =$

6. Wiz Khalifa is in a hot air balloon is tethered to the ground by a 121-foot cable. As the balloon is inflated, it begins to rise. Due to the wind, the angle of depression from the balloon to the ground is  $42^\circ$  when the cable is pulled tight. How high above the ground is the balloon at this instant before the cable is released?

(0)  $x$

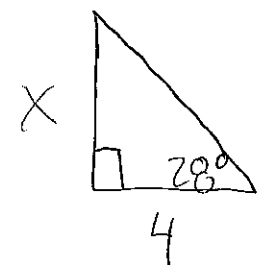


$\sin(42) = \frac{x}{121}$   
 $x = 121 \sin(42)$   
 $x = 81$

7. Nicki Minaj driving along a flat road approaching some mountains. As you pass a sign that informs you that the mountain is 4 miles away, the angle of elevation to the highest peak

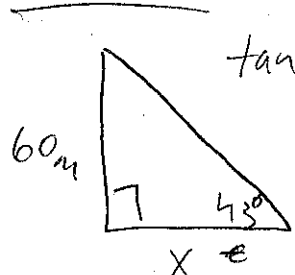
8. Jay Z is contemplating his rap career at the top of a vertical cliff 60 m high, the angle of depression of an object that is level with the

you can see is  $28^\circ$ . Approximately how high is that peak?




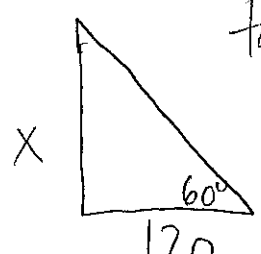
$\tan(28) = \frac{x}{4}$   
 $x = 4 \tan 28$   
 $x = 2.1268$   
 miles

base of the cliff is  $43^\circ$ . How far is the object from the base of the cliff?



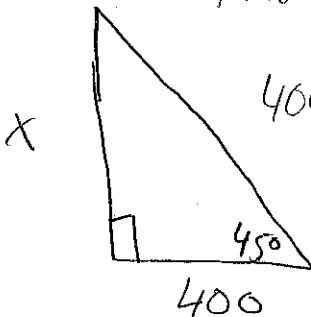
$\tan(43) = \frac{60}{x}$   
 $x = \frac{60}{\tan(43)}$   
 $x = 64$

9. Kanye West is standing at a point 120 ft away from the foot of a tower, the angle of elevation of the top of the tower is  $60^\circ$ . What is the height of the tower?

$\tan(60) = \frac{x}{120}$   
 $x = 120 \tan(60)$   
 $x = 207.8$

10. The angle of depression of a stone on the ground from the top of a tower is  $45^\circ$ . If the stone is at a distance of 400 meters away from the building, find the height of the tower.



$\tan(45) = \frac{x}{400}$   
 $400 \tan(45) = x$   
 $x = 400$

To receive credit you **MUST** draw the diagram, **label** the given sides, angles, and **label** the missing side length  $x$ . Then **solve** and use the calculator to approximate the distance.

**Why did the rapper carry an umbrella?**

A. 8081	E. 64	I. 52	O. 49501	U. 56
B. 1.88	C. 29	D. 208	F. 259	H. 60
L. 34	P. 123	R. 400	Z. 81	.2.13

F O ! D r i z z l e

4 5 7 9 10 1 6 3 2 8