Derek White

1.2

The Measures of a Triangle are given. Find the measure of the third angle.

23.) $37^\circ, 52^\circ$

$180^\circ - 37^\circ - 52^\circ = 91^\circ$

25.) $147^\circ 12', 30^\circ 19'$

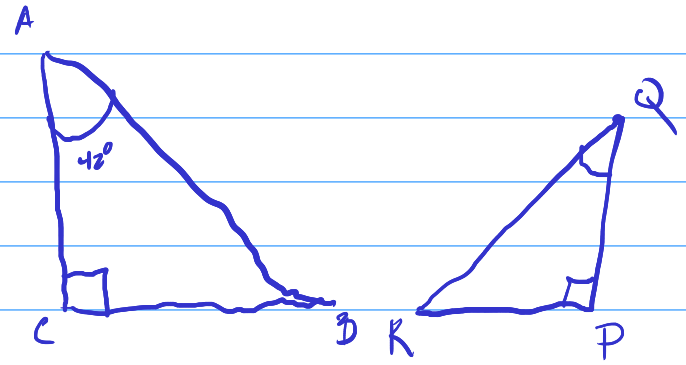
$180^\circ - 147^\circ - 30^\circ = 3^\circ$

$2^\circ 60' - 12' - 19' = 29'$

$= 2^\circ 29'$

Find all unknown angle measures in each pair of similar triangles

47.)



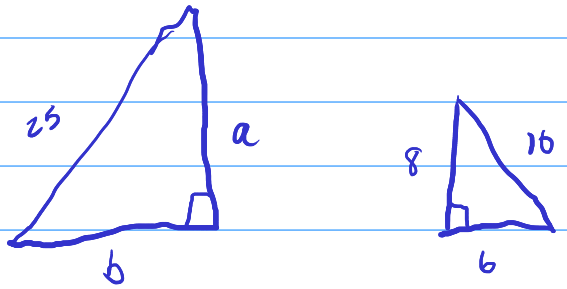
$A\emptyset = Q\emptyset = 42^\circ$

$C\emptyset = P\emptyset = 90^\circ$

$B\emptyset = R\emptyset = 180^\circ - 42^\circ - 90^\circ$

$= 48^\circ$

53.)



$\frac{b}{25} = \frac{6}{10}$

$25\left(\frac{6}{10}\right) = b = 15$

$\frac{a}{25} = \frac{8}{10}$

$25\left(\frac{8}{10}\right) = a = 20$

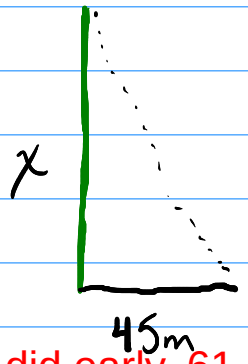
57.)

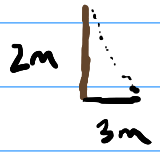
$\frac{4}{6} = \frac{x}{9}$ $\quad 9\left(\frac{4}{6}\right) = x = 6$

Solve Each Problem:

Height of a Tree: A tree casts a shadow 45m long. At the same time, the shadow cast by a verticle 2m stick is 3m long. Find the height of the tree

59.)





$\frac{3m}{2m} = \frac{x_m}{45m}$ $\quad 45m\left(\frac{3m}{2m}\right) = x = 30m$

Accidentally did early, 61 is below

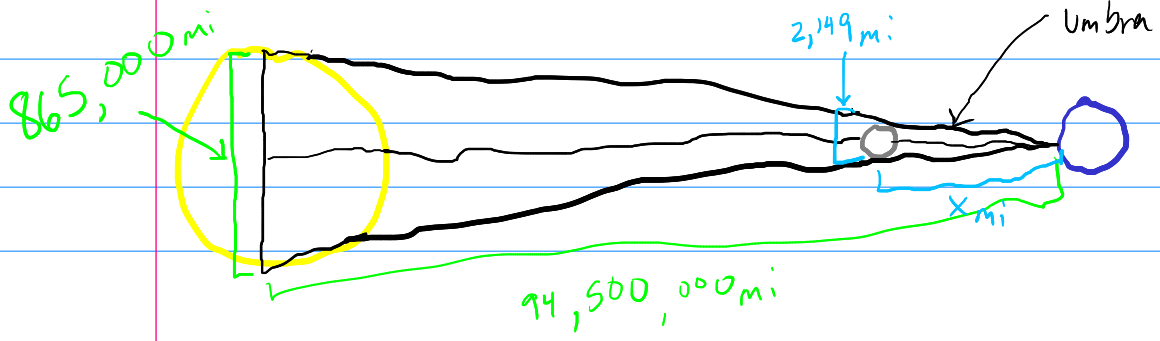
69.)

Solar Eclipse on Earth

The sun has a diameter of about 865,000 Miles with a maximum distance from Earth's surface of about 94,500,000 Miles. The moon has a smaller diameter of 2,149 Miles. For a total solar eclipse to occur, the moon must pass between Earth and Sol. Luna must also be close enough to Earth fo Umbra (shadow) to reach the surface of Earth.

A. Calculate the maximum distance, to the nearest thousand miles, that Luna can be from Earth and still have a total solar eclipse occur (Use simila triangles)

B. The closest approach of Luna to Earth's surface was 225,745 Miles and the farthest was 251, 978 Miles. Can a total solar eclipse occur every tim Luna is between Earth and Sol?



a.) $\frac{94,500,000 \text{ mi}}{865,000 \text{ mi}} = \frac{x \text{ mi}}{2,149 \text{ mi}}$

$2,149 \text{ mi}\left(\frac{94,500,000 \text{ mi}}{865,000 \text{ mi}}\right) = x = 234,775.1445 \text{ mi}$

$\approx 235,000 \text{ mi}$

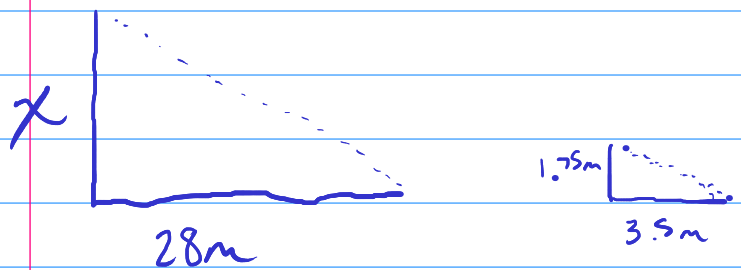
Round up to nearest Thousand miles

b.) NO, the maximum distance a total solar eclipse can occur is 234,775mi. Thus, anything over 234,775mi will result in a solar eclipse however it will not be a total solar eclipse since Luna is not completely blocking out Sol.

62.)

Height of a Lighthouse

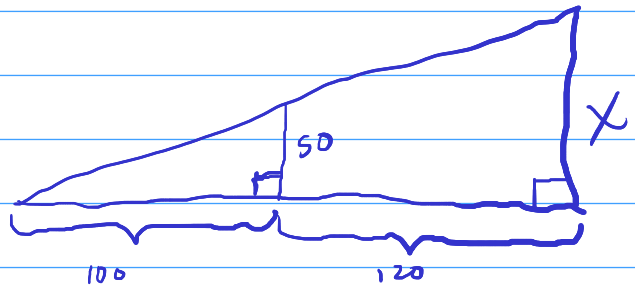
The Biloxi lighthouse in the figure casts a shadow 28m long at 7am. At the same time, the shadow of the lighthouse keeper, who is 1.75m tall is 3.5m long. How tall is the lighthouse?



$\frac{x}{28m} = \frac{1.75m}{3.5m}$

$28m\left(\frac{1.75m}{3.5m}\right) = x = 14m$

65.



$100 + 120 = 220$

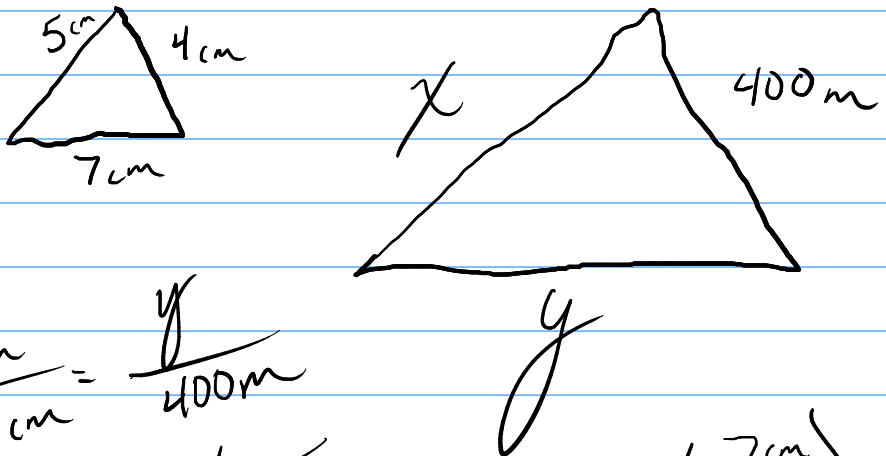
$$\frac{50}{100} = \frac{X}{220}$$

$$220\left(\frac{50}{100}\right) = X = 110$$

61.

Lengths of Sides of a Triangle

On a photograph of a triangular piece of a land, the lengths of the three sides are 4cm, 5cm, and 7cm respectively. The shortest side of the actual p
of land is 400m long. Find the lengths of the other two sides.



$$\frac{7cm}{4cm} = \frac{Y}{400m}$$

$$\frac{5cm}{4cm} = \frac{X}{400m}$$

$$400m\left(\frac{7cm}{4cm}\right) = Y = 700m$$

$$400m\left(\frac{5cm}{4cm}\right) = X = 500m$$