

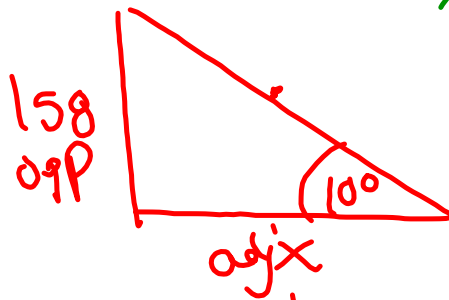
$$\tan \theta = \frac{o}{a}$$

$$\tan 24^\circ = \frac{158}{x}$$

$$0.4452 = \frac{158}{x}$$

$$\frac{0.4452x}{0.4452} = \frac{158}{0.4452}$$

$$x = 354.9 \text{ m}$$



$$\tan \theta = \frac{o}{a}$$

$$\tan 10^\circ = \frac{158}{x}$$

$$0.1763 = \frac{158}{x}$$

$$\frac{0.1763x}{0.1763} = \frac{158}{0.1763}$$

$$x = 896.1$$

3.

150

45°

10

x

hyp

opp

adj

150

10

x

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan 45 = \frac{150}{x}$$

$$\frac{1.0000}{1} = \frac{150}{x}$$

$$1x = 150$$

$$x = 150$$

$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan 10 = \frac{150}{x}$$

$$\frac{0.1763}{1} = \frac{150}{x}$$

$$0.1763x = 150$$

$$x = 850.8$$

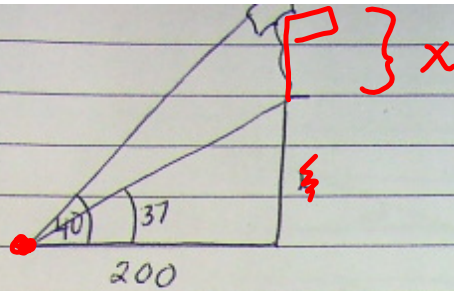
850.8

-150

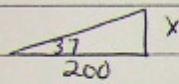
700.8 m

The bikes are 700.8m apart.

7.



Building:



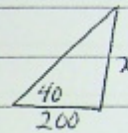
$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan 37 = \frac{x}{200}$$

$$\frac{0.7536}{1} = \frac{x}{200}$$

$$x = 150.7 \text{ m}$$

Top of flagpole:



$$\tan \theta = \frac{\text{opp}}{\text{adj}}$$

$$\tan 40 = \frac{x}{200}$$

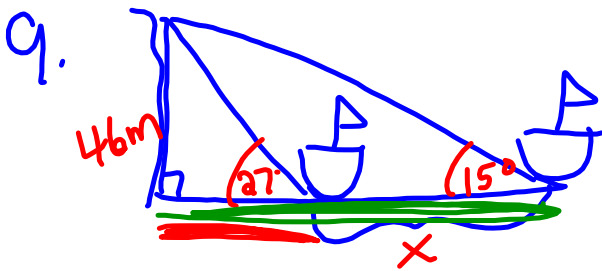
$$\frac{0.8391}{1} = \frac{x}{200}$$

$$x = 167.8 \text{ m}$$

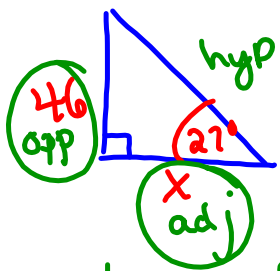
Flagpole: 167.8

-150.7

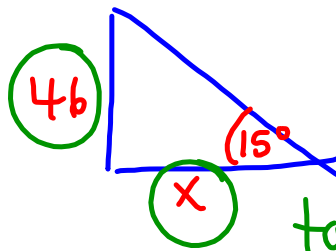
17.1 m



$$171.7 - 90.3 = 81.4m$$

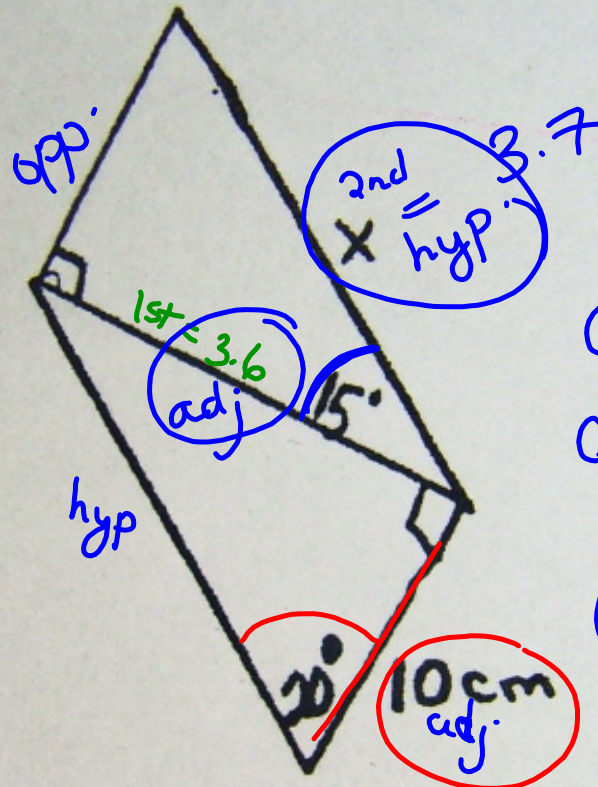


$$\begin{aligned} \tan \theta &= \frac{o}{a} \\ \tan 27^\circ &= \frac{46}{x} \\ 0.5095 &= \frac{46}{x} \\ 0.5095x &= 46 \\ x &= 90.3 \end{aligned}$$



$$\begin{aligned} \tan \theta &= \frac{o}{a} \\ \tan 15^\circ &= \frac{46}{x} \\ 0.2679 &= \frac{46}{x} \\ 0.2679x &= 46 \\ x &= 171.7 \end{aligned}$$

10



$$\begin{aligned} \tan 20^\circ &= \frac{a}{a} \\ \tan 20^\circ &= \frac{x}{10} \\ \frac{0.3640}{1} &= \frac{x}{10} \\ x &= 3.6 \end{aligned}$$

$$\begin{aligned} \cos \theta &= \frac{a}{h} \\ \cos 15^\circ &= \frac{3.6}{x} \\ \frac{0.9659}{1} &= \frac{3.6}{x} \\ \frac{0.9659x}{0.9659} &= \frac{3.6}{0.9659} \\ x &= 3.7 \end{aligned}$$

From the top of a cliff 46m high the angles of depression to the water are 27° and 15° . How far apart are the boats?

10.
Find x .

$$\begin{aligned} \tan \theta &= \frac{o}{a} \\ \tan 27^\circ &= \frac{x}{10} \\ \frac{0.5095}{1} &= \frac{x}{10} \\ x &= 5.1 \end{aligned}$$

$$\begin{aligned} \cos \theta &= \frac{a}{h} \\ \cos 15^\circ &= \frac{3.6}{x} \\ \frac{0.9659}{1} &= \frac{3.6}{x} \\ 0.9659x &= 3.6 \\ \frac{0.9659x}{0.9659} &= \frac{3.6}{0.9659} \\ x &= 3.7 \end{aligned}$$

