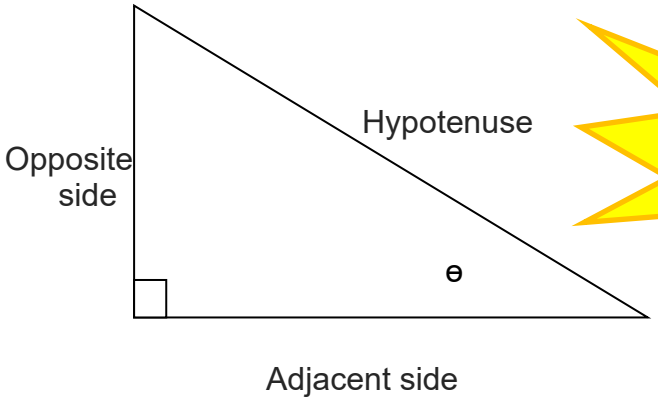
TRIGONOMETRY – TAN RULE

STEP BY STEP

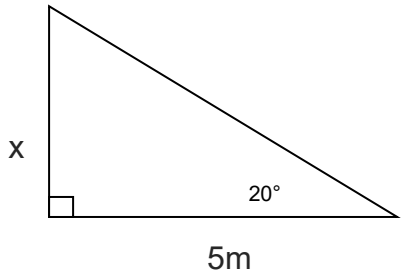


Tan Θ = $\frac{\text{Opposite}}{\text{Adjacent}}$

There is no Hypotenuse in the Tan Rule.

FIND THE OPPOSITE SIDE (X ON THE TOP OF THE FRACTION)

Q1. The horizontal beam of a shed roof is 5 metres long. It is at an angle of 20° to the horizontal. How high is the roof? Complete the working below.



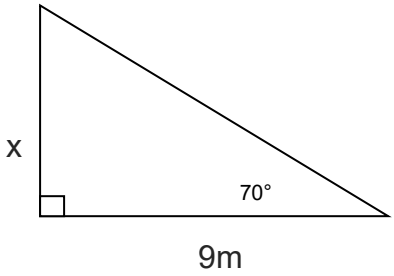
tan ɵ = $\frac{O}{A}$

tan 20° = $\frac{x}{5}$

x = tan 20° x 5

x =

Q2. A mobile 'phone transmitter tower stands 9 metres from its supporting anchor on the ground. The angle that the top of the tower it makes with the horizontal is 70°. How far from the anchor is the bottom of the tower? Complete the working below.



tan ɵ = $\frac{O}{A}$

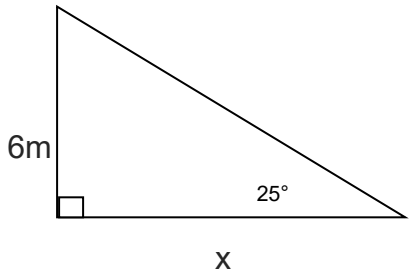
tan 70° = $\frac{x}{9}$

x =

x =

FIND THE ADJACENT SIDE
(X ON THE BOTTOM OF THE FRACTION)

Q3. The altitude of a girl's remote controlled helicopter is 6 metres high. It is at an angle of 25º to the horizontal. What is the horizontal distance of the helicopter from the girl? Complete the working below.



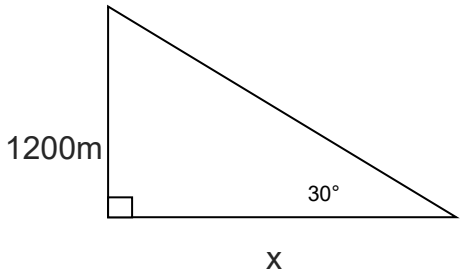
$\tan \theta = \frac{O}{A}$

$\tan 25° = \frac{6}{x}$

$x = \frac{6}{\tan 25°}$

x =

Q4. A lost hiker sees a rescue 'plane at an angle of 30° with the ground. If the altitude of the 'plane is 1200m, what is its horizontal distance from the hiker? Complete the working below.



$\tan \theta = \frac{O}{A}$

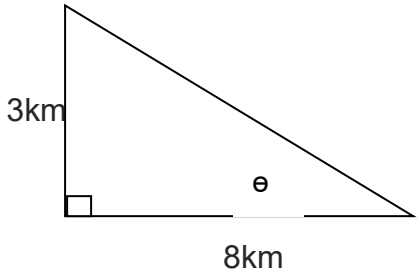
$\tan 30° = \frac{1200}{x}$

x =

x =

FIND THE ANGLE

Q5. A rectangular paddock measures 3km by 8km. What is the angle of the diagonal? Complete the working below.



$\tan \theta = \frac{O}{A}$

$\tan \theta = \frac{3}{8}$

$\theta = \tan^{-1} (3 \div 8)$

θ =