Welcome Back MYP Math 9!

Reflect on last night's exercises.

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: 11/20 Topic: 8C Solving for sides	0 1 2	Write!! Reflect!
Tuesday Date: 11/21 Topic: 13B and 13C Review WS	0 1 2	Reflect for the week!
Wednesday Date: 11/22 Topic: 13D Solving for angles	0 1 2	
Thursday Date: _____ Topic: _____	0 1 2	NO SCHOOL
Friday Date: _____ Topic: _____	0 1 2	NO SCHOOL

Class Plan:

1. Homework Questions?
2. Warm-up: Angle Application
3. 13E Problem Solving

Warm-up: Solving for Angles

https://www.youtube.com/watch?v=5ALc4mNKL7c

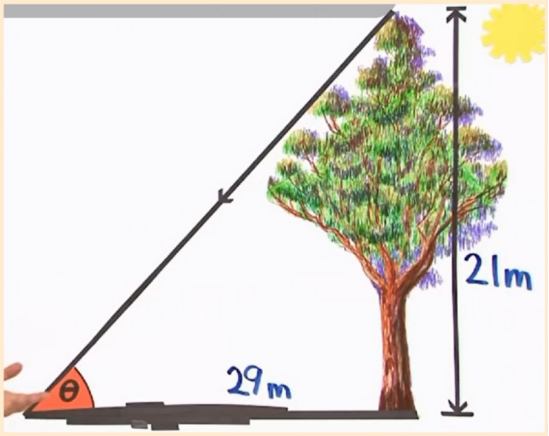
1) Draw the triangle

2) Watch Video Presentation:

Try to solve before the presenter finishes the problem!

$\theta \approx 35.9^\circ$

$\tan\theta = \frac{21}{29}$



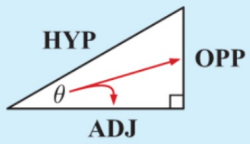
D **FINDING ANGLES**

E **PROBLEM SOLVING WITH TRIGONOMETRY**

DO: 13E Problem Solving with Trigonometry

In any right angled triangle with one angle θ, we have:

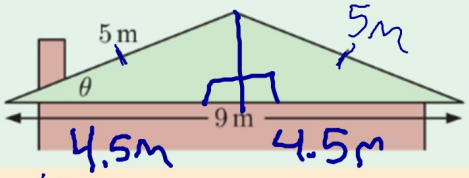
$$\sin\theta = \frac{\text{OPP}}{\text{HYP}}, \quad \cos\theta = \frac{\text{ADJ}}{\text{HYP}}, \quad \tan\theta = \frac{\text{OPP}}{\text{ADJ}}$$



Done? Help others!
Work on other homework.

D FINDING ANGLES

Find the pitch θ of the roof alongside.

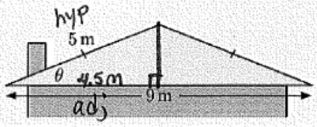


$\cos\theta = \frac{4.5}{5}$

$\theta = \cos^{-1}\left(\frac{4.5}{5}\right) \approx 25.8^\circ$

Solution

1 Find the pitch θ of the roof alongside.



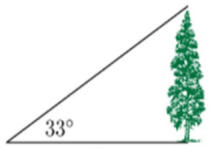
$\cos\theta = \frac{4.5}{5}$

$\theta = \cos^{-1}\left(\frac{4.5}{5}\right)$

$\theta \approx 25.8^\circ$

D FINDING ANGLES

2



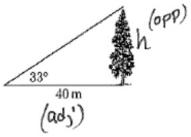
The shadow of a tree is 40 m long. The angle from the end of the shadow to the top of the tree is 33°. Find the height of the tree.

$\tan 33 = \frac{h}{40}$ $\quad h = 40 \cdot \tan(33)$

$h \approx$

Solution

2



The shadow of a tree is 40 m long. The angle from the end of the shadow to the top of the tree is 33°. Find the height of the tree.

$\tan 33 = \frac{h}{40}$

$h = 40 \tan 33^\circ$

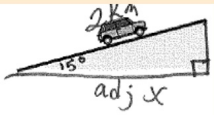
$h \approx 25.98\ m \approx 26\ m$

D FINDING ANGLES

3 A driver travels 2 km up a long steady incline angled 15° to the horizontal. How far has the driver moved horizontally?

Solution

3 A driver travels 2 km up a long steady incline angled 15° to the horizontal. How far has the driver moved horizontally?

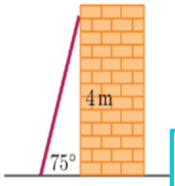


$\cos 15^\circ = \frac{x}{2}$

$2\cos 15^\circ = x$

$x \approx 1.93\text{ km}$

D FINDING ANGLES

4 

A ladder makes an angle of 75° with the ground, and rests 4 m up a wall.
Find the length of the ladder.

Solution

4 

A ladder makes an angle of 75° with the ground, and rests 4 m up a wall.
Find the length of the ladder.

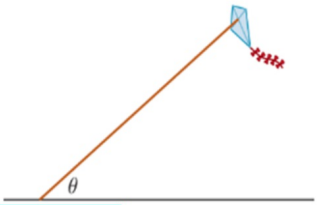
$\sin 75 = \frac{4}{L}$

$L \cdot \sin 75 = 4$

$L = \frac{4}{\sin 75}$ $\quad L \approx 4.14 m$

D FINDING ANGLES

5 A kite is attached to a 30 m long string. The other end of the string is secured to the ground. If the kite is flying 21 m above ground level, find the angle θ that the string makes with the ground.



Solution

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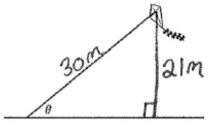
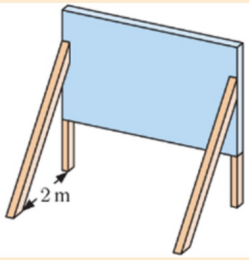


$\sin\theta = \frac{21}{30}$

$\theta = \sin^{-1}\left(\frac{21}{30}\right)$ $\theta \approx 44.4°$

D FINDING ANGLES

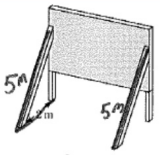
6



A billboard for advertising by a highway is supported by two 5 m long beams. Find the angle that the beams make with the ground.

Solution

6



A billboard for advertising by a highway is supported by two 5 m long beams. Find the angle that the beams make with the ground.

$\cos\theta = \frac{2}{5}$

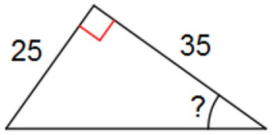
$\theta = \cos^{-1}\left(\frac{2}{5}\right)$

$\theta \approx 66.4°$

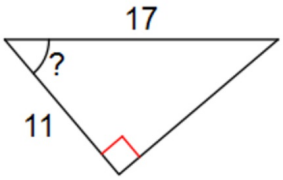
D FINDING ANGLES

Find the measure of the indicated angle.

7)



8)



Exercises...

Finish Worksheet

EXERCISE 13E

1 $\theta \approx 25.8°$	**2** ≈ 26.0 m	**3** ≈ 1.93 km	**4** ≈ 4.14 m
5 $\approx 44.4°$	**6** $\approx 66.4°$	**7** $\approx 36°$	**8** $\approx 50°$

Enjoy time with friends & family.

We are thankful for all of you! :)