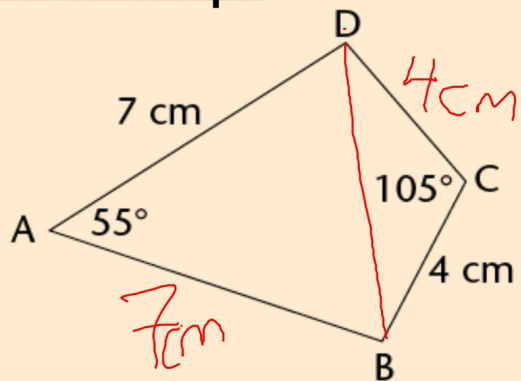


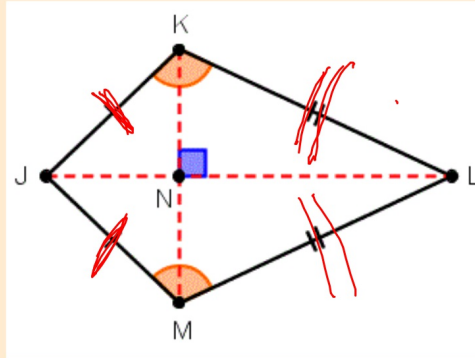
## Welcome Back MYP Math 9!

	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
<b>Monday</b> Date: <u>11/27</u> Topic: <u>13D - 13E Review</u>	0   1   2	
<b>Tuesday</b> Date: <u>11/28</u> Topic: <u>Review</u>	0   1   2	
<b>Wednesday</b> Date: <u>11/29</u> Topic: <u>25B: Law of Sines Area</u>	0   1   2	
<b>Thursday</b> Date: <u>11/30</u> Topic: <u>25C: Law of Sines</u>	0   1   2	
<b>Friday</b> Date: _____ Topic: _____	0   1   2	

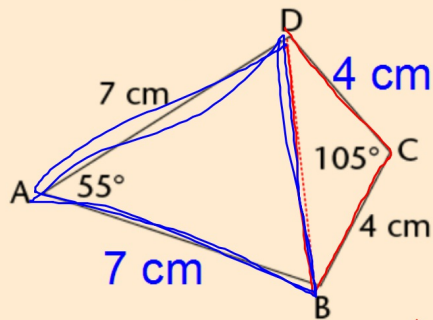
Warm-up: Find the area of the kite.



How are the sides of a kite related?



Warm-up: Find the area of the kite.



$$\text{area} = \frac{1}{2}ab \sin C$$

$$\Delta CBD = \frac{1}{2}(4)(4)\sin 105 \approx 7.72 \text{ cm}^2$$
$$\Delta ABD = \frac{1}{2}(7)(7)\sin 55 \approx 20.06 \text{ cm}^2$$
$$\text{Kite } ABCD \approx 27.78 \text{ cm}^2$$

Class Plan: Happy Thursday!

1) Warm-up

2) Review for Quiz 3.2 Trigonometry

Chapter 13: Right Triangle Trigonometry

Sections A, B, C, D, E

Chapter 25: Non Right Triangle Trig.

Sections B, C

3) Message from Mr. Ehlke



## Trigonometry Quiz 3.2

### Chapter 13: Right Triangle Trigonometry

#### 13B Trig Ratios

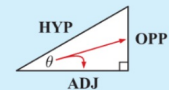
#### 13C Sides

#### 13D Angles

#### 13E Applications with Trigonometry

In any right angled triangle with one angle  $\theta$ , we have:

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



### Chapter 25: Non Right Triangle Trig.

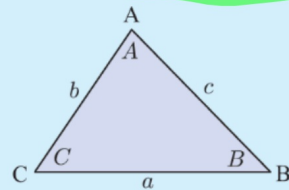
#### 25B The Sine Rule Area

~~$$\text{area} = \frac{1}{2} ab \sin C$$~~

#### 25C The Sine Rule

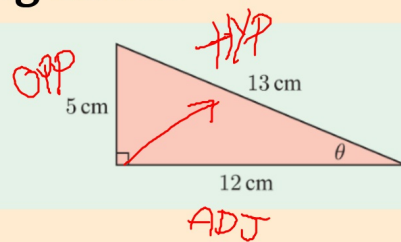
In any triangle ABC with sides  $a$ ,  $b$ , and  $c$  units, and opposite angles  $A$ ,  $B$ , and  $C$  respectively,

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \quad \text{or} \quad \frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}.$$



### Review 13B Right Triangle Trig Ratios

3 Find  $\sin \theta$ ,  $\cos \theta$ , and  $\tan \theta$  for the given triangle.



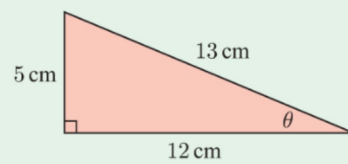
$$\sin \theta = \frac{\text{OPP}}{\text{HYP}} = \frac{5}{13}$$

$$\cos \theta =$$

$$\tan \theta =$$

## Review 13B Right Triangle Trig Ratios

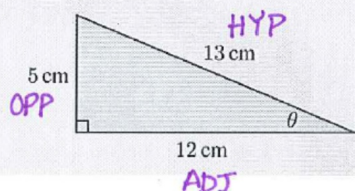
- 3 Find  $\sin \theta$ ,  $\cos \theta$ , and  $\tan \theta$  for the given triangle.



### 13B Right Triangle Trigonometric Ratios

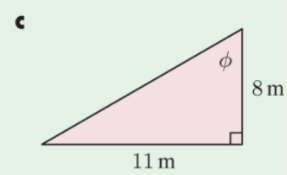
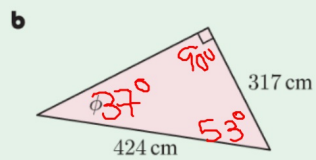
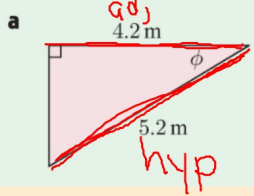
- 3 Find  $\sin \theta$ ,  $\cos \theta$ , and  $\tan \theta$  for the given triangle.

$$\sin \theta = \frac{5}{13} \quad \cos \theta = \frac{12}{13} \quad \tan \theta = \frac{5}{12}$$



## Review 13D Solving for Angles

5 Find the value of  $\phi$ :



$$\cos \phi = \frac{4.2}{5.2}$$

$$\phi = \cos^{-1}\left(\frac{4.2}{5.2}\right)$$

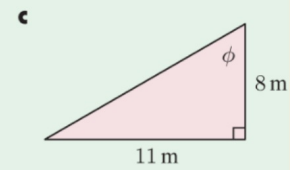
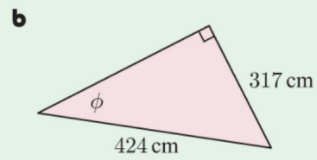
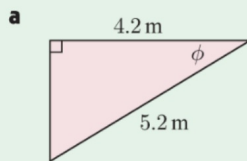
$$\phi \approx 36.1^\circ$$

$$\phi \approx 37^\circ$$



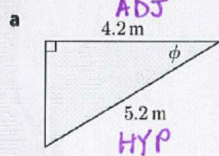
## Review 13D Solving for Angles

5 Find the value of  $\phi$ :



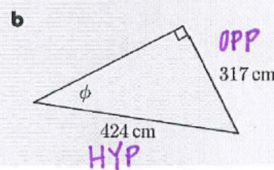
13D Solving for Angles

5 Find the value of  $\phi$ :



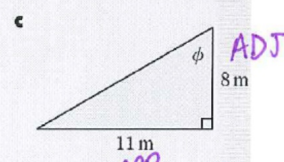
$$\phi = \cos^{-1}\left(\frac{4.2}{5.2}\right)$$

$$\boxed{\phi \approx 36^\circ}$$



$$\phi = \sin^{-1}\left(\frac{317}{424}\right)$$

$$\boxed{\phi \approx 48^\circ}$$

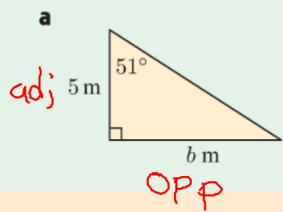


$$\phi = \tan^{-1}\left(\frac{11}{8}\right)$$

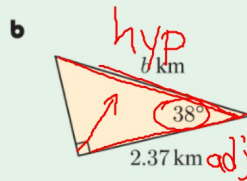
$$\boxed{\phi \approx 54^\circ}$$

## Review 13C Solving for Sides

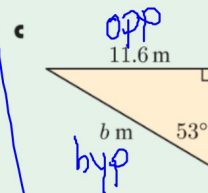
6 Find the value of  $b$ :



$$\frac{\tan 51^\circ = \frac{b}{5}}{1 \leftarrow 5}$$
$$5 \cdot \tan 51^\circ = b$$
$$\boxed{6.17 \text{ m} \approx b}$$



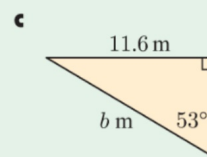
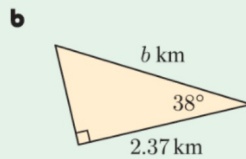
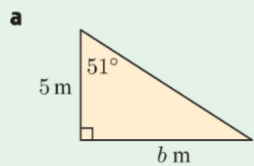
$$\cos 38^\circ = \frac{\text{adj}}{\text{hyp}}$$
$$\frac{\cos 38^\circ}{1} = \frac{2.37}{b}$$



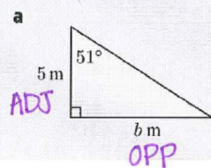
$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$
$$\frac{\sin 53^\circ}{1} = \frac{11.6}{b}$$

## Review 13C Solving for Sides

6 Find the value of  $b$ :



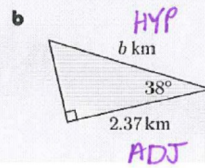
6 Find the value of  $b$ :



$$\tan 51^\circ = \frac{b}{5}$$

$$b = 5 \cdot \tan 51^\circ$$

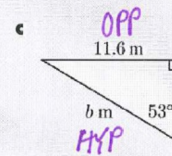
$$\boxed{b \approx 6.2 \text{ m}}$$



$$\cos 38^\circ = \frac{2.37}{b}$$

$$\frac{2.37}{\cos 38^\circ} = \frac{b \cdot \cos 38^\circ}{\cos 38^\circ}$$

$$\boxed{3.0 \approx b}$$



$$\sin 53^\circ = \frac{11.6}{b}$$

$$\frac{11.6}{\sin 53^\circ} = \frac{b \cdot \sin 53^\circ}{\sin 53^\circ}$$

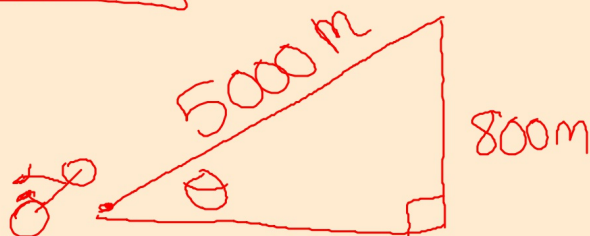
$$\boxed{14.5 \approx b}$$

## Review 13E Applications with Trigonometry

- 9 A cyclist travels for 5 km up a steady incline. In that time she climbs a vertical distance of 800 m. Find the angle of the incline.

$$1000 \text{ m} = 1 \text{ km}$$

$$5000 \text{ m} = 5 \text{ km}$$

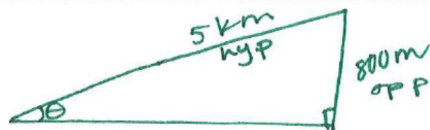


## Review 13E Applications with Trigonometry

- 9 A cyclist travels for 5 km up a steady incline. In that time she climbs a vertical distance of 800 m. Find the angle of the incline.

13E Applications with Trigonometry

- 9 A cyclist travels for 5 km up a steady incline. In that time she climbs a vertical distance of 800 m. Find the angle of the incline.



$$5 \text{ km} = 5,000 \text{ m}$$

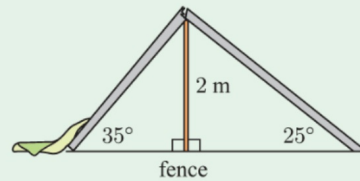
$$\sin(\theta) = \frac{800 \text{ m}}{5,000 \text{ m}}$$

$$\theta = \sin^{-1}\left(\frac{800}{5000}\right)$$

$$\theta \approx 9.21^\circ$$

## Review 13E Applications with Trigonometry

- 11 During a storm, a flagpole falls and breaks over a fence, as shown. How tall was the flagpole?



$$\sin(25) = \frac{2}{x}$$

$$\frac{\sin(25) \cdot x = 2}{\sin(25)} \quad \frac{2}{\sin(25)}$$

$x \approx 4.7324 \text{ m}$

$$\sin(35) = \frac{2}{y}$$

$$\frac{\sin(35) \cdot y = 2}{\sin(35)} \quad \frac{2}{\sin(35)}$$

$y \approx 3.487 \text{ m}$

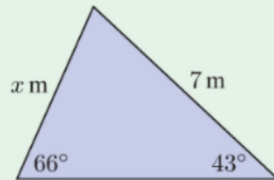
$$4.7324 + 3.487 = 8.2194$$

The flagpole is approximately 8.2 m tall.

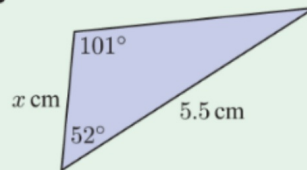
## Review 25C The Sine Rule

4 Find the value of  $x$ :

a

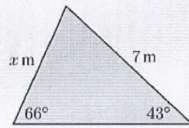


b



4 Find the value of  $x$ :

a

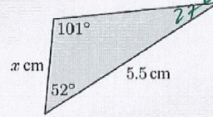


$$\frac{\sin(43)}{x} = \frac{\sin(66)}{7}$$

$$\frac{\sin(43) \cdot 7}{\sin(66)} = \frac{\sin(66) \cdot x}{\sin(66)}$$

$$x \approx 5.23 \text{ m}$$

b



the flagpole is approximately 8.2 m tall.

$$101 + 52 = 153$$

$$180 - 153 = 27^\circ$$

$$\frac{\sin(27)}{x} = \frac{\sin(101)}{5.5}$$

$$\frac{\sin(27) \cdot 5.5}{\sin(101)} = \frac{\sin(101) \cdot x}{\sin(101)}$$

$$x \approx 5.46 \text{ cm}$$

Exercises...

Study for Quiz 3.2  
(Complete Review WS)