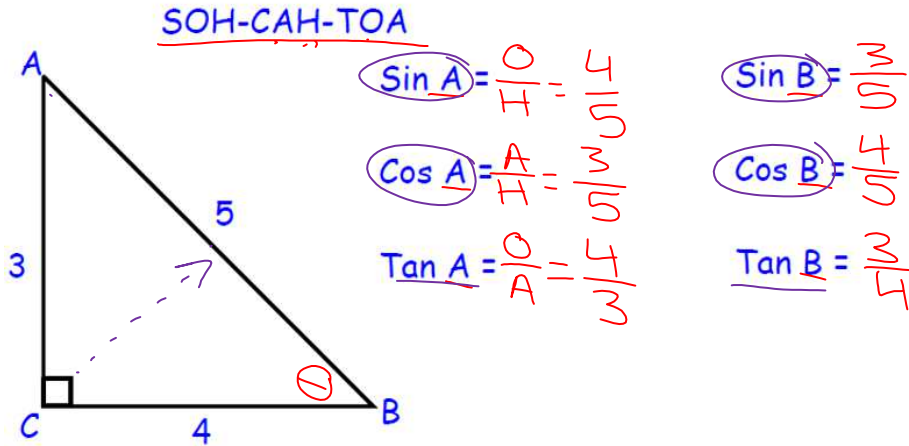


CODE RED – DO NOW

Complete the table:



RIGHT TRIANGLE TRIGONOMETRY

SOL G.8

Learning Target: By the end of class I will be able to use trigonometric ratios to find missing sides in right triangles, and will do this by completing a series of problems as a class before completing an exit ticket with at least 3 of 4 questions answered correctly.

Essential Questions:

- How is the Pythagorean Theorem derived and what is significant about its derivation?
- How are ratios used to solve for unknown lengths of sides in a right triangle?
- How are ratios utilized to solve for unknown angles in a right triangle?
- How are similar right triangles related to trigonometric ratios?

TODAY'S AGENDA

- ✓ Do Now
- ✓ SOH-CAH-TOA
- ✓ Using Sin, Cos, and Tan
- ✓ Kahoot!
- ✓ Gallery Walk
- ✓ Exit Ticket

CODE YELLOW

Trigonometric Functions:

SOH-CAH-TOA

$$\sin = \frac{\text{opp}}{\text{hyp}} \quad \cos = \frac{\text{adj}}{\text{hyp}} \quad \tan = \frac{\text{opp}}{\text{adj}}$$

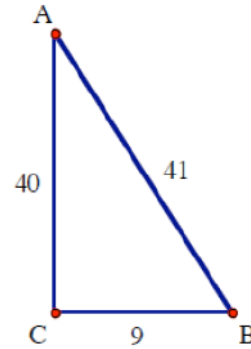
CODE GREEN

Find the trigonometric ratio as a fraction and as a decimal rounded to the nearest ten thousandth.

	fraction	decimal
13. $\sin A =$	$\frac{9}{41}$.2195

	fraction	decimal
15. $\tan B =$	$\frac{40}{9}$	4.444

	fraction	decimal
17. $\cos A =$	$\frac{40}{41}$.9756

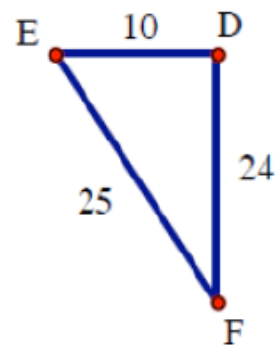


CODE GREEN

Find the trigonometric ratio as a fraction and as a decimal rounded to the nearest ten thousandth.

	fraction	decimal
14. $\cos F =$	$\frac{24}{25}$.96

	fraction	decimal
16. $\sin E =$	$\frac{24}{25}$.96



CODE YELLOW

The actual ratios for each angle can be found using either....

- a) A trig table (see handout)
- b) A scientific calculator*

Always make sure your calculator is set to "Degrees" ("Radians" will give you VERY wrong answers)

CODE YELLOW

Coach Riddick's "Old School" Trig Table

θ	Sin (θ)	Cos (θ)	Tan (θ)	θ	Sin (θ)	Cos (θ)	Tan (θ)	θ	Sin (θ)	Cos (θ)	Tan (θ)
0	0.0000	1.0000	0.0000								
1	0.0175	0.9998	0.0175	31	0.5150	0.8572	0.6009	61	0.8746	0.4848	1.8040
2	0.0349	0.9994	0.0349	32	0.5299	0.8480	0.6249	62	0.8829	0.4695	1.8807
3	0.0523	0.9986	0.0524	33	0.5446	0.8387	0.6494	63	0.8910	0.4540	1.9626
4	0.0698	0.9976	0.0699	34	0.5592	0.8290	0.6745	64	0.8988	0.4384	2.0503
5	0.0872	0.9962	0.0875	35	0.5736	0.8192	0.7002	65	0.9063	0.4226	2.1445
6	0.1045	0.9945	0.1051	36	0.5878	0.8090	0.7265	66	0.9135	0.4067	2.2460
7	0.1219	0.9925	0.1228	37	0.6018	0.7986	0.7536	67	0.9205	0.3907	2.3559
8	0.1392	0.9903	0.1405	38	0.6157	0.7880	0.7813	68	0.9272	0.3746	2.4751
9	0.1564	0.9877	0.1584	39	0.6293	0.7771	0.8098	69	0.9336	0.3584	2.6051

CODE GREEN

Find the value of each ratio to the nearest ten thousandth.

ex. $\sin 35^\circ = .5736$

1. $\sin 40^\circ = \underline{0.6428}$

2. $\cos 36^\circ = \underline{0.8090}$

3. $\tan 15^\circ = \underline{0.2679}$

4. $\sin 82^\circ = \underline{0.9903}$

5. $\cos 78^\circ = \underline{0.2079}$

6. $\tan 63^\circ = \underline{1.9626}$

Find the measure of each angle to the nearest degree. *and Sin/cos/tan*

ex. $\sin A = .7586$ $\underline{49^\circ}$

7. $\sin A = .8365$ $\underline{57^\circ}$

8. $\cos B = .3494$ $\underline{70^\circ}$

9. $\tan C = .8383$ $\underline{40^\circ}$

10. $\sin D = .1334$ $\underline{8^\circ}$

11. $\cos E = .0634$ $\underline{86^\circ}$

12. $\tan F = 4.4533$ $\underline{77^\circ}$

CODE GREEN

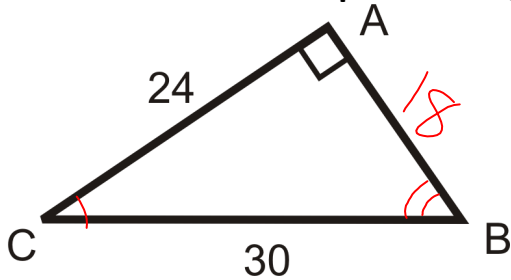
KAHOOT!!

<https://play.kahoot.it/#/k/cf6d7097-f9bf-4c91-846c-6f8b769cc1b6>

CODE RED – DO NOW

Complete Problems #1-3

1. Use $\triangle ABC$ to answer questions A, B, and C.



A) What is the length of \overline{AB} ?

18

B) What is $\sin C$? $\frac{O}{H} = \frac{18}{30} = \frac{3}{5}$

C) What is $\tan B$? $\frac{O}{A} = \frac{24}{18} = \frac{4}{3}$

2. Find the value of each ratio, round to 4 decimal places.

A) $\sin 23^\circ = .3907$ B) $\cos 64^\circ = .4383$ C) $\tan 82^\circ = 7.1154$

3. Find the measure of $\angle A$ to the nearest degree.

A) $\sin A = 0.829$ 56° B) $\cos A = 0.978$ 12° C) $\tan A = 1.11$ 48°

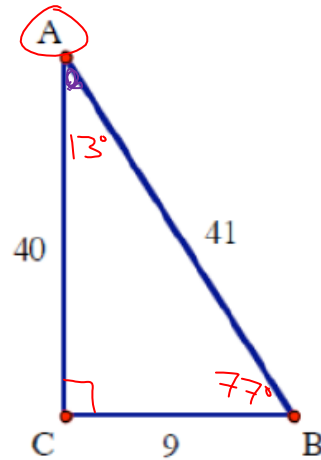
CODE YELLOW

Find the trigonometric ratio as a fraction and as a decimal rounded to the nearest ten thousandth.

	fraction	decimal
13. $\sin A =$	$\frac{19}{41}$.2195

	fraction	decimal
15. $\tan B =$	$\frac{40}{9}$	4.444

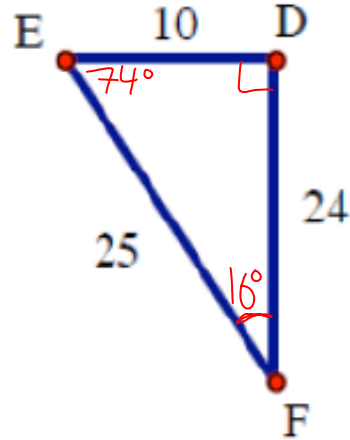
	fraction	decimal
17. $\cos A =$	$\frac{40}{41}$.9756



CODE YELLOW

Find the trigonometric ratio as a fraction and as a decimal rounded to the nearest ten thousandth.

	fraction	decimal
14. $\cos F =$	$\frac{24}{25}$.96
	fraction	decimal
16. $\sin E =$	$\frac{24}{25}$.96



CODE YELLOW

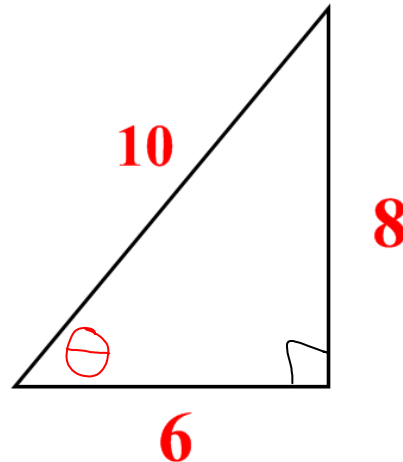
What is θ ?

$$\sin \theta = \frac{\text{opp}}{\text{hyp}}$$

$$\sin \theta = \frac{8}{10}$$

$$\sin \theta = .8$$

$$\theta = 53^\circ$$



CODE YELLOW

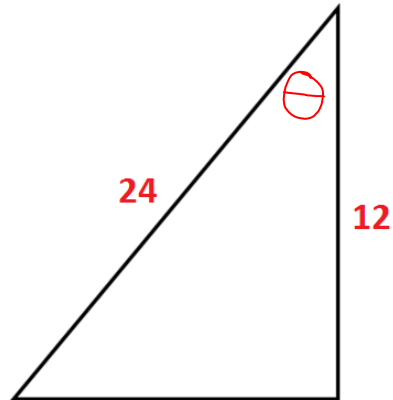
What is θ ?

$$\cos \theta = \frac{\text{adj}}{\text{hyp}}$$

$$\cos \theta = \frac{12}{24}$$

~~$$\cos \theta = .5$$~~

$$\theta = 60^\circ$$



CODE YELLOW

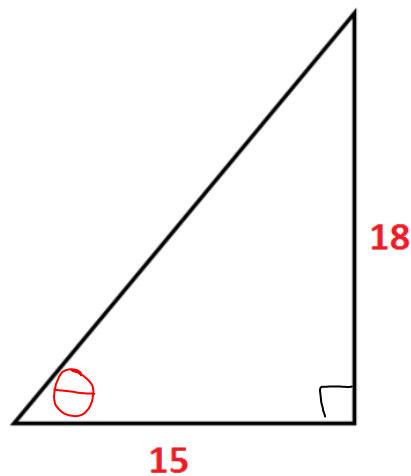
What is θ ?

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

$$\tan \theta = \frac{18}{15}$$

~~$$\tan \theta = 1.2$$~~

$$\theta = 50^\circ$$



CODE GREEN

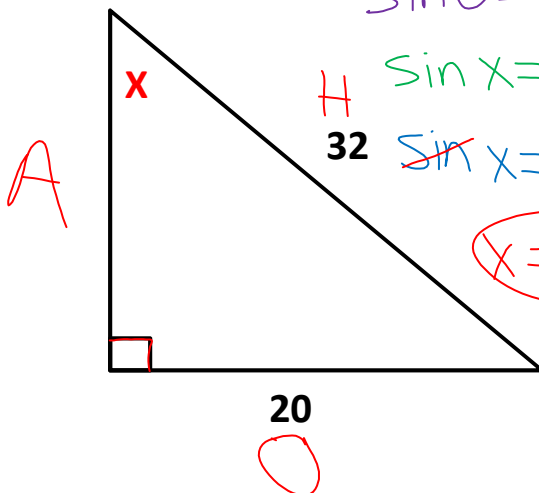
Use ONE of the THREE trig functions to find the measure of the missing angle.

Steps:

1. Decide which trig function is most useful.
2. Setup the fraction for your trig function.
3. Change your fraction into a decimal.
4. Use a calculator or trig table to solve.

CODE YELLOW – REVIEW

Missing Angle



$$\sin \theta = \frac{O}{H}$$

$$\sin x = \frac{20}{32}$$

$$\sin x = .625$$

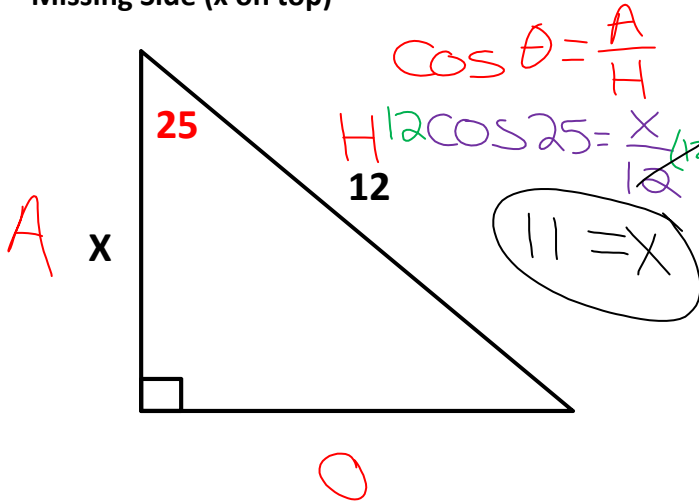
$$x = 39^\circ$$

Steps

1. Pick Sin, Cos, or Tan
2. Write equation
3. Plug in numbers
4. Turn fraction to decimal
5. Use 2nd (Sin/Cos/Tan)

CODE YELLOW – REVIEW

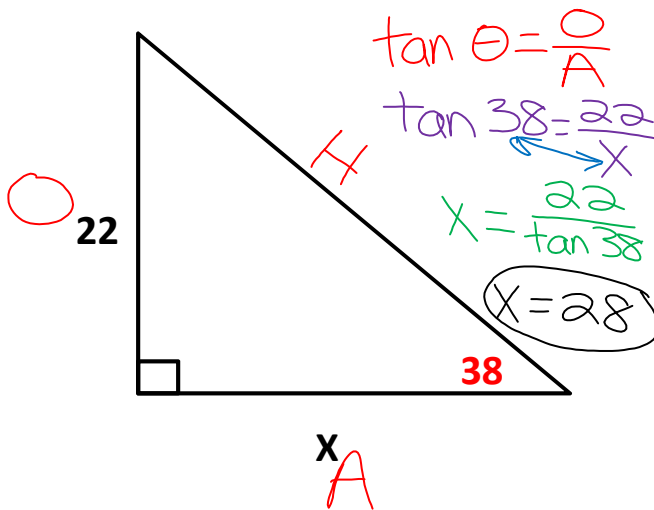
Missing Side (x on top)



1. Pick Sin, Cos, or Tan
2. Write equation
3. Plug in numbers
4. Multiply by denominator

CODE YELLOW – REVIEW

Missing Side (x on bottom)



1. Pick Sin, Cos, or Tan
2. Write equation
3. Plug in numbers
4. Switch X with Sin/Cos/Tan
5. Divide in calculator