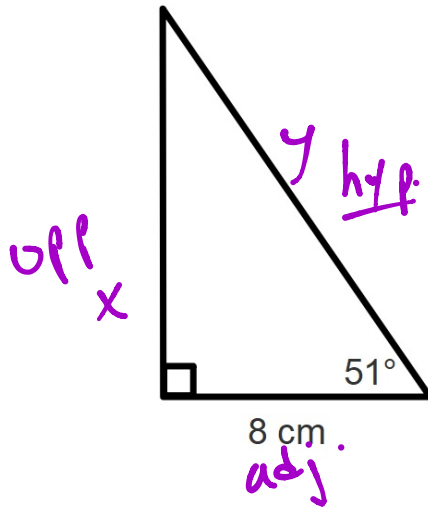


Good afternoon: warm up



SOH CAH TOA

Find the perimeter of this triangle to the nearest tenth cm.

to find y
have adjacent... need hypotenuse
→ use cosine!

$$\cos(51) = \frac{8}{y}$$

$$0.63 = \frac{8}{y}$$

$$0.63y = 8$$

$$y = \underline{\underline{12.7}}$$

cont'd
↓

Reminders:

retakes available in DS Thurs, Fri
tutoring/retakes today 4-5p

another assessment: Tues 2/20

SOH CAHT OA

to find x :

From 51° , we have adjacent,
need opposite \Rightarrow tangent!

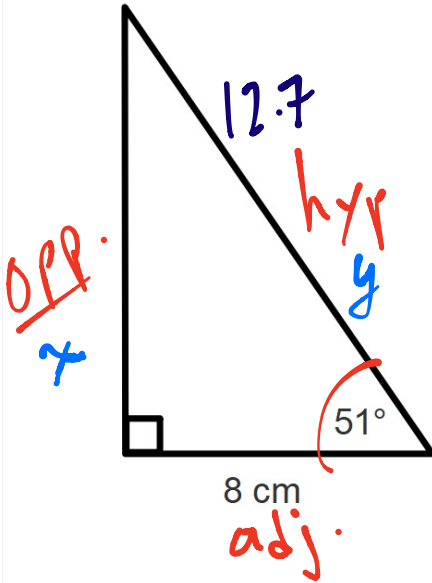
$$\tan(51) = \frac{x}{8} \quad \left\{ \begin{array}{l} \leftarrow \text{opp} \\ \leftarrow \text{adj} \end{array} \right.$$

$$1.23 = \frac{x}{8}$$

$$8(1.23) = \frac{x}{8} \cdot 8$$

$$\underline{\underline{9.88 = x}}$$

TIP:
use 2+
decimals
from calc



$$\text{Perimeter: } 8 + 9.88 + 12.7$$

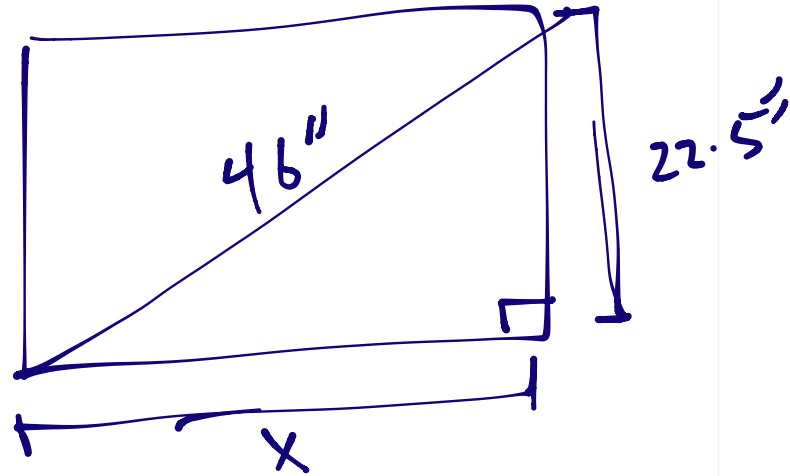
$$\underline{\underline{\approx 30.6}}$$

cm

Visibly Random Grouping

2nd warm up!

A new TV advertises a 46" screen (measured diagonally).
If it is 22.5" tall, how wide is the tv?



$$x^2 + 22.5^2 = 46^2$$
$$x^2 + 506.25 = 2116$$

$$x^2 = 1609.75 \Rightarrow x = \sqrt{1609.75}$$
$$\approx 40.1''$$

$$6 \frac{8}{12}' \approx \underline{\underline{6.67'}} \quad \rightarrow \underline{\underline{2.67'}}$$

A typical door frame measures 6'8" tall and 2'8" wide.
Will a 7' by 7' painting fit through the door?



$$6.67^2 + 2.67^2 = c^2$$

$$51.62 = c^2$$

$$7.18' = c > 7'$$

So, yes

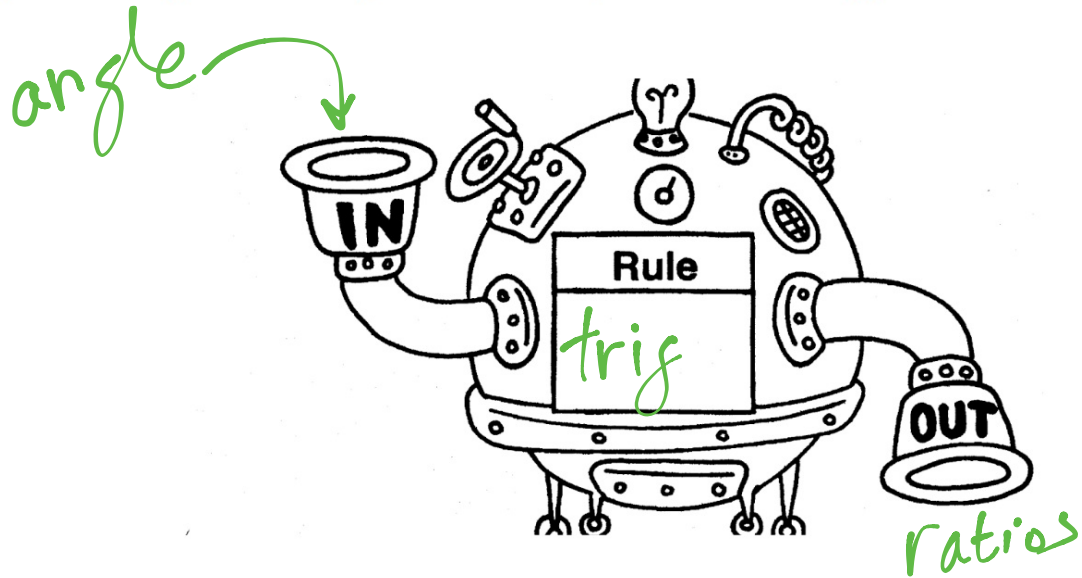
Skills on today's assessment:

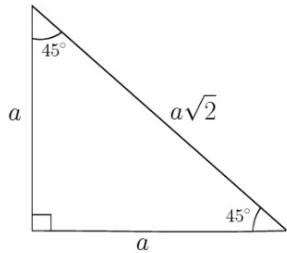
- applying Pythagorean Theorem
- writing trig ratios, finding missing lengths using trig
- special right triangles
- dilations about the origin; area and dilation

Assessing at the end of class today...30 mins

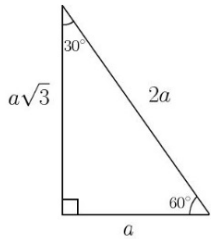
Remember that sin, cos, and tan are functions

They take inputs and produce outputs according to their definitions





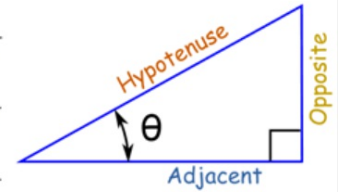
Special Right Triangles



$$\sin \theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$$

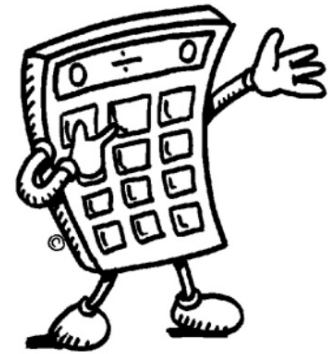
$$\cos \theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$$

$$\tan \theta = \frac{\text{Opposite}}{\text{Adjacent}}$$



What is the calculator doing when you type in something like:

$\cos(39)$



and the calculator says 0.7771459...??

Before calculators, mathematicians and students alike had to use "trig tables" which were books full of data that others had calculated by hand. Since similar right triangles keep side proportions, these ratios could be used so long as you knew the angle measure.

	Sinus	Tangens	Secans
29	9680748	38020782	39894421
28	9680018	38574537	39849654
27	9679288	38528396	39804991
26	9678557	38482358	39760431
25	9677825	38436424	39715975
24	9677092	38390591	39671621
23	9676358	38344861	39627369
22	9675624	38299233	39583219
21	9674888	38253707	39539171
20	9674152	38208281	39495224
19	9673415	38162957	39451379
18	9672678	38117733	39407633
17	9671939	38072609	39363988
16	9671200	38027585	39320443
15	9670459	37982661	39276997
14	9669718	37937835	39233651
13	9668977	37893109	39190403

Need the ratio of adjacent leg to hypotenuse for a 39° angle?

Look it up in the table!

The calculator is kind of* doing that.

1619 AD

So trigonometry is based in part on referring to tables of values...

28 Deg.

/	//	Sines	Dif.	Co-Sines	Dif.	Tang.	Dif.	Co-Tang.	/	/	/	//	Sines
0	0	9.6716093		9.9459349	112	9.7256744		10.2743256	0	60	10	0	9.672
	10	9.6716489	396	9.9459237	112	9.7257252	508	10.2742748	50			10	9.674
	20	9.6716885	396	9.9459125	112	9.7257759	507	10.2742241	40			20	9.674
	30	9.6717281	396	9.9459013	112	9.7258267	508	10.2741733	30			30	9.674
	40	9.6717677	396	9.9458901	112	9.7258775	508	10.2741225	20			40	9.674
	50	9.6718072	395	9.9458789	112	9.7259283	508	10.2740717	10			50	9.674
I	0	9.6718468	396	9.9458677	112	9.7259791	508	10.2740209	0	59	I 1	0	9.674
	10	9.6718864	396	9.9458565	112	9.7260298	507	10.2739702	50			10	9.674
	20	9.6719259	395	9.9458453	112	9.7260806	508	10.2739194	40			20	9.674
	30	9.6719655	396	9.9458341	112	9.7261314	508	10.2738686	30			30	9.674
	40	9.6720051	396	9.9458229	112	9.7261821	507	10.2738179	20			40	9.674
	50	9.6720446	395	9.9458117	112	9.7262329	508	10.2737671	10			50	9.674
2	0	9.6720841	395	9.9458005	112	9.7262837	508	10.2737163	0	58	I 2	0	9.674
	10	9.6721237	396	9.9457893	112	9.7263344	507	10.2736656	50			10	9.674
	20	9.6721632	395	9.9457781	112	9.7263852	508	10.2736148	40			20	9.674
	30	9.6722028	396	9.9457669	112	9.7264359	507	10.2735641	30			30	9.674
	40	9.6722423	395	9.9457556	113	9.7264866	507	10.2735134	20			40	9.674
	50	9.6722818	395	9.9457444	112	9.7265374	508	10.2734626	10			50	9.674
3	0	9.6723213	395	9.9457332	112	9.7265881	507	10.2734119	0	57	I 3	0	9.674

Tables can work in 2 directions.



Appetizers

A1.	Vegetable Spring Roll (1 pc)	\$1.35
A2.	Pork Egg Roll (1 pc)	\$1.50
A3.	Crab Rangoon (8 pcs)	\$6.25
A4.	Steamed or Fried: Vegetable Gyoza (6pc)	\$4.25 / \$4.95
	<small>g Kinds vegetables: Edamame, Green Bean, Yellow Carrot, Carrot, Red Bell Pepper, Onion, Potato, Cabbage and Garlic</small>	
A5.	Steamed or Fried: Pork Potsticker (8pc)	\$5.25 / \$5.95
A6.	Cho Cho Chicken (4 pcs)	\$6.95
	<small>Marinated in house teriyaki sauce and skewered on sticks</small>	
A8.	Thai Fish Cake (8 pcs)	\$4.50
	<small>w. Sriracha hot chili sauce</small>	

"I ordered Crab Rangoons...how much did I pay?"



Appetizers

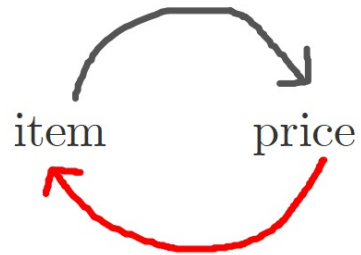
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"I paid \$6.25...what did I order?"

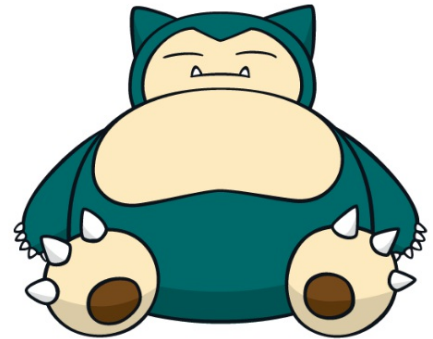


Appetizers

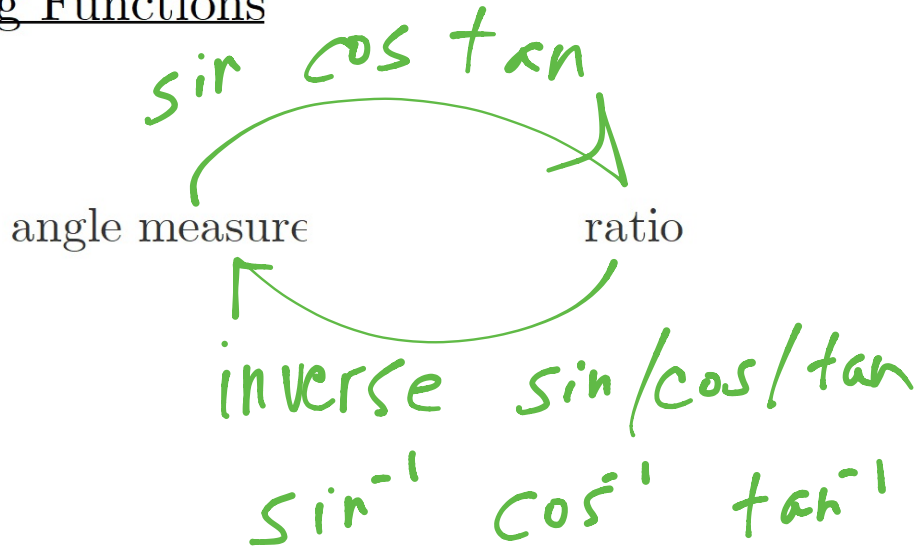
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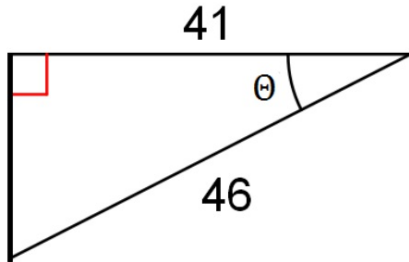
[me after rice boxx]



Inverse Trig Functions



Find the value of Θ to the nearest degree



*-to do
later*

From reference angle, label opp/adj/hyp
Determine best trig function to use
Set up equation, invert, and solve