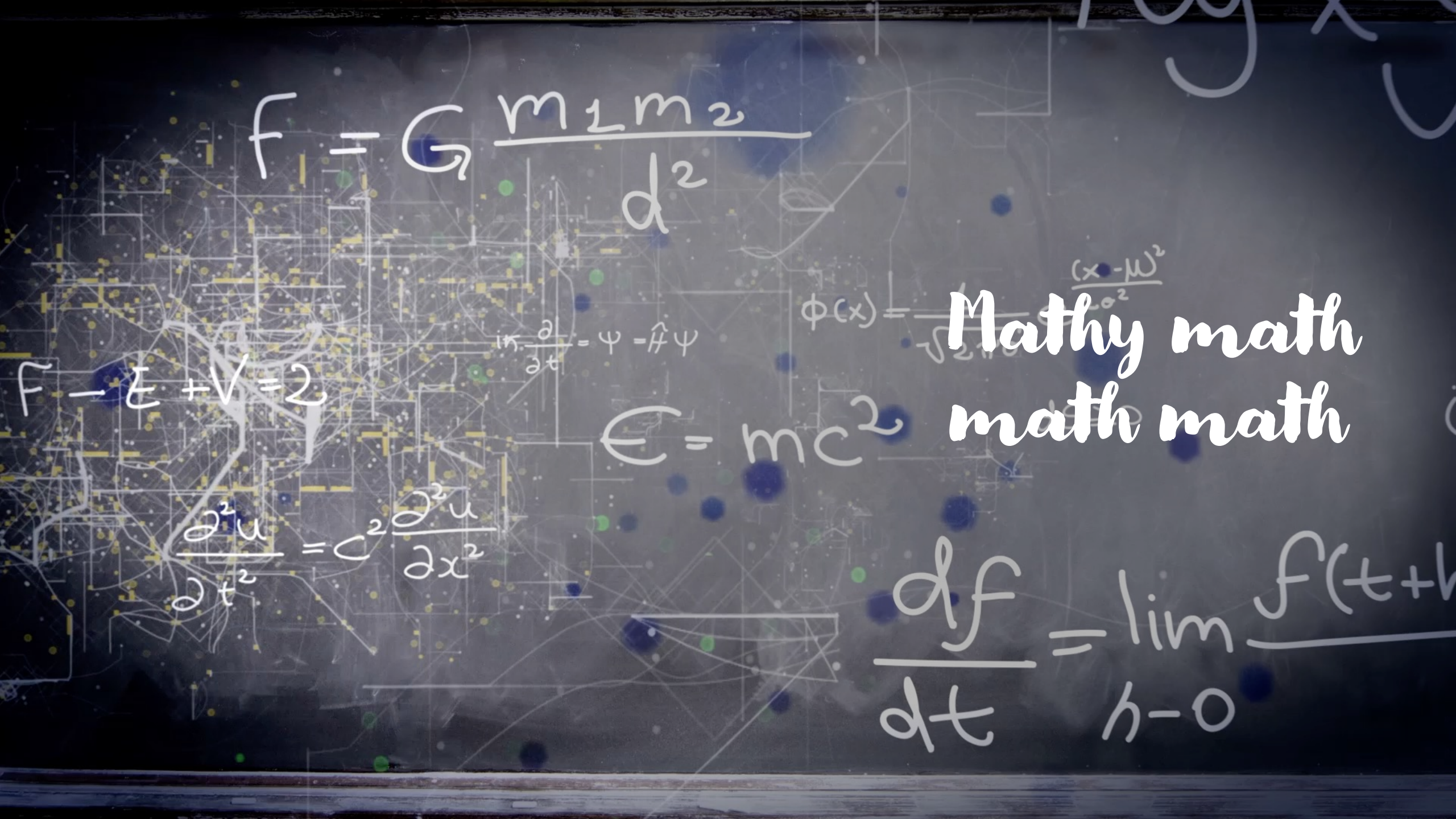
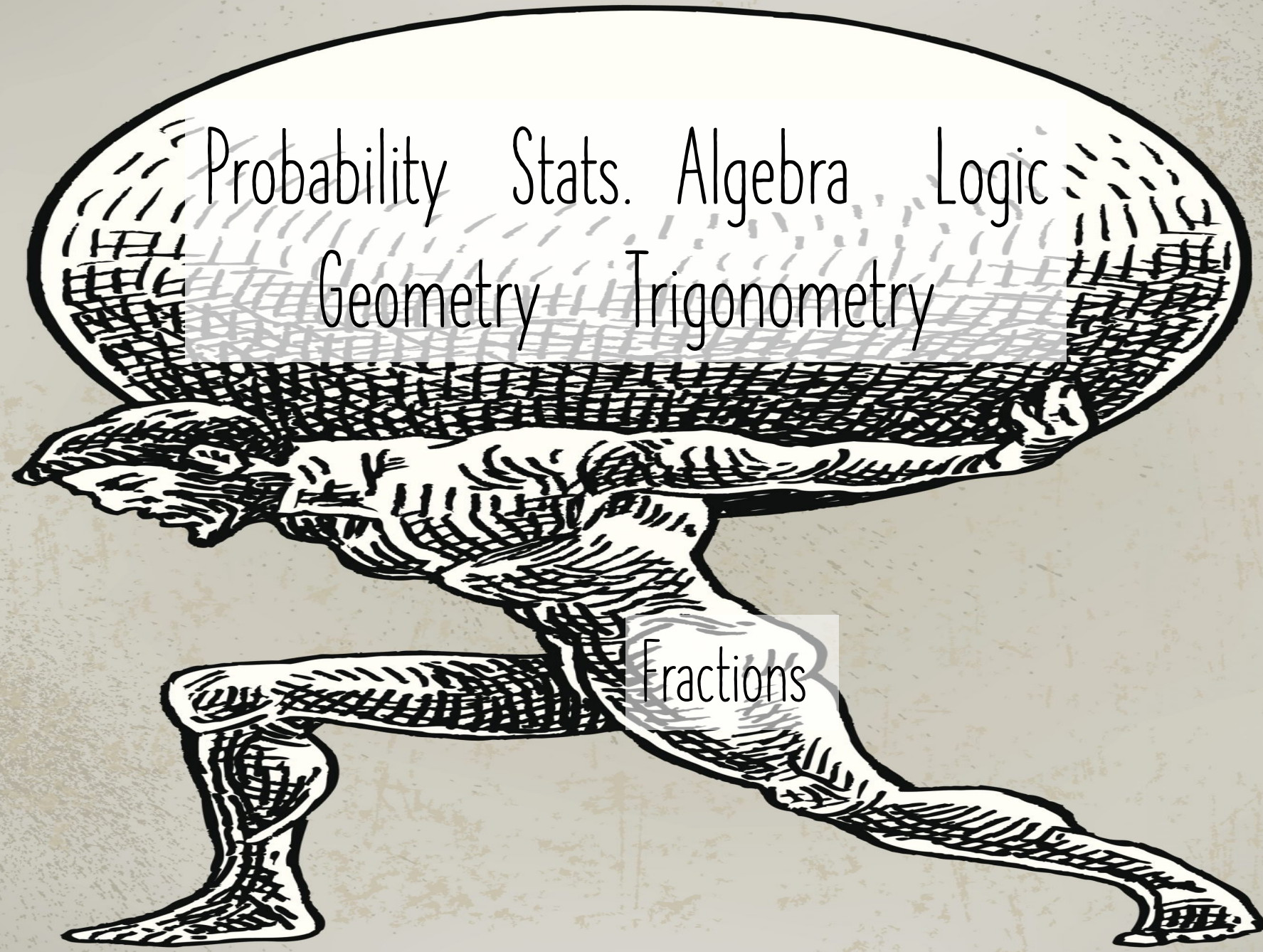
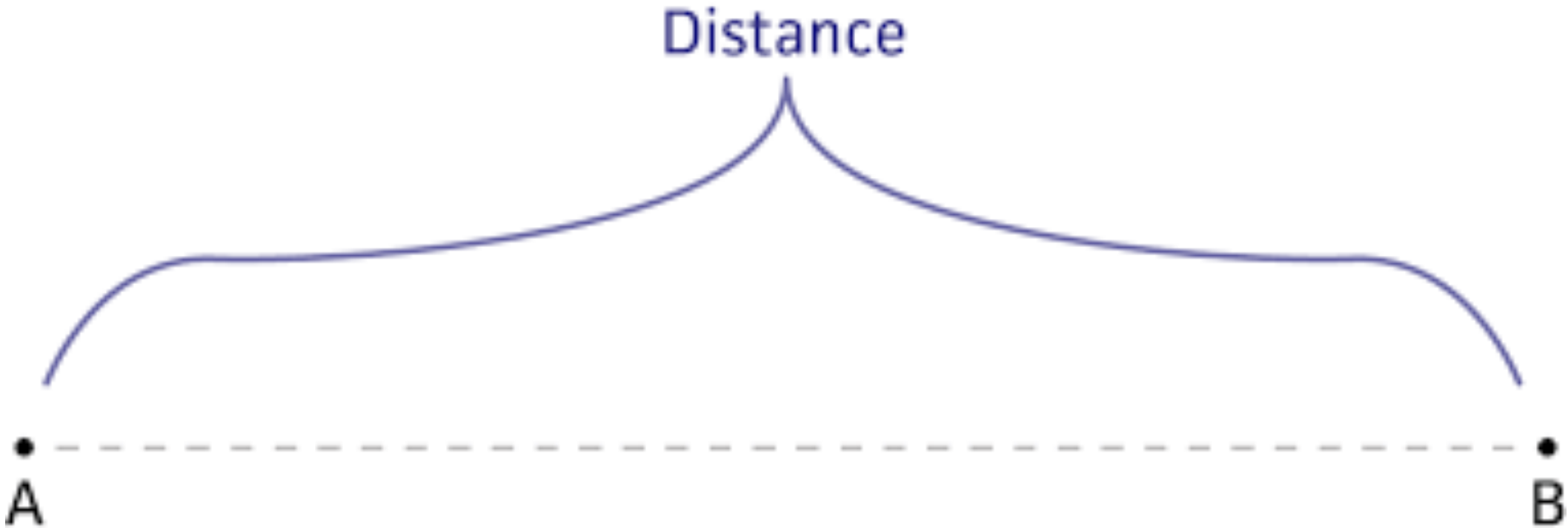

Mathy math
math math

How to get grades

Tests & Quizzes	/20
Projects	/40
Presentations	/20
Class participation	/20
Exams	/100


Probability Stats. Algebra Logic
Geometry Trigonometry
Fractions

TIME


Distance
A
B

Fractions

1/8 + 2/8 =
2/3 – 1/3 =
4/6 * 3/6 =
2/5 ÷ 4/5 =

5/8 + 2/5 =
2/3 – 2/9 =
3/6 * 2/7 =
1/7 ÷ 2/4 =

2/10 + 2/5 =
4/6 – 1/3 =
5/10 * 2/7 =
3/5 ÷ 6/10 =

Math
Jan 23 - 27

Monday - Intro

Tuesday - Fractions & Ratios

Wednesday - Practice

Thursday - Test & Project Intro.

Friday - Review & Probability

Math Project

1- Cover page

2- Introduction **(Due Monday Jan.30)**

Your topic – give details

Why you choose this topic

How you will go about collecting your data

Your questions

(e.g., What is your age? / How many children do you want?)

Your hypothesis – what you think the outcome will be

3- Data sheet **(Due Feb. 6)**

20 answers on a table

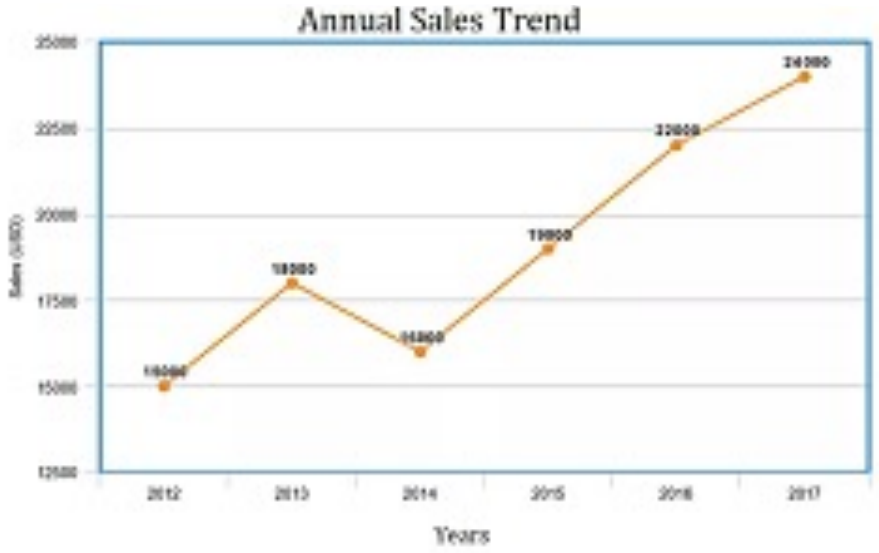
4- Results

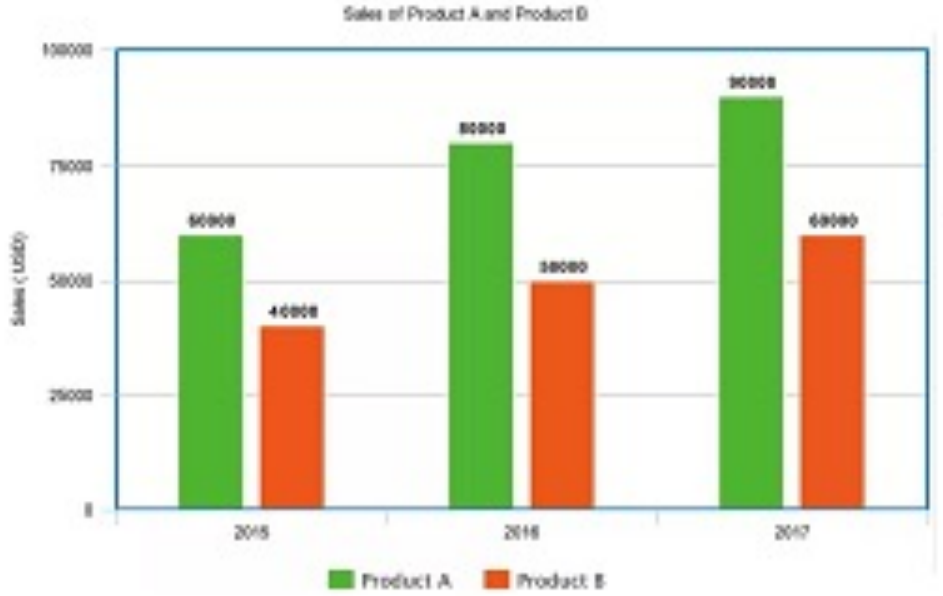
Graph with data and analysis

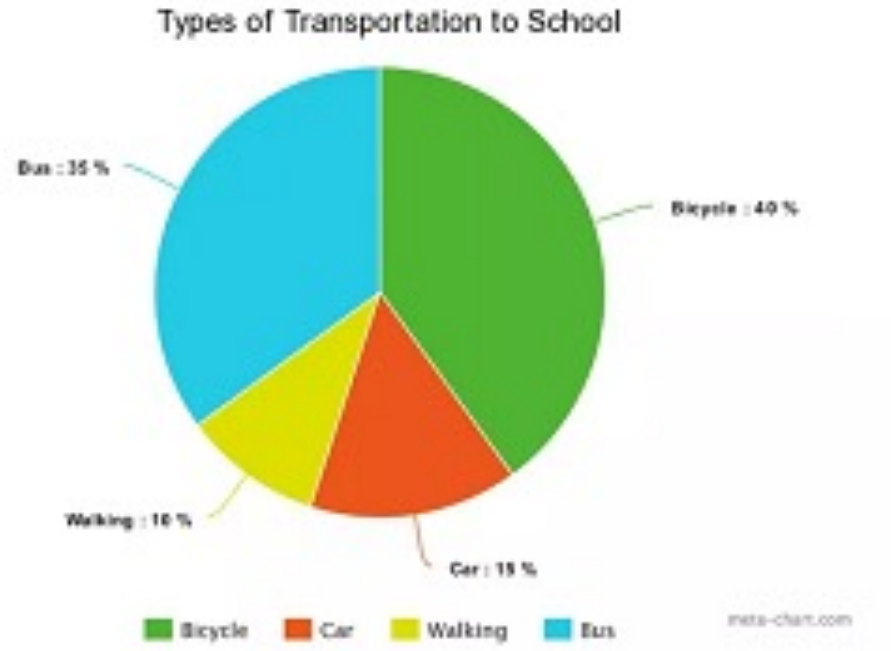
Other interesting details (male/female), where they live, education, income …

5- Conclusions

6- What you learned **(Due Feb.13)**


Annual Sales Trend
Years

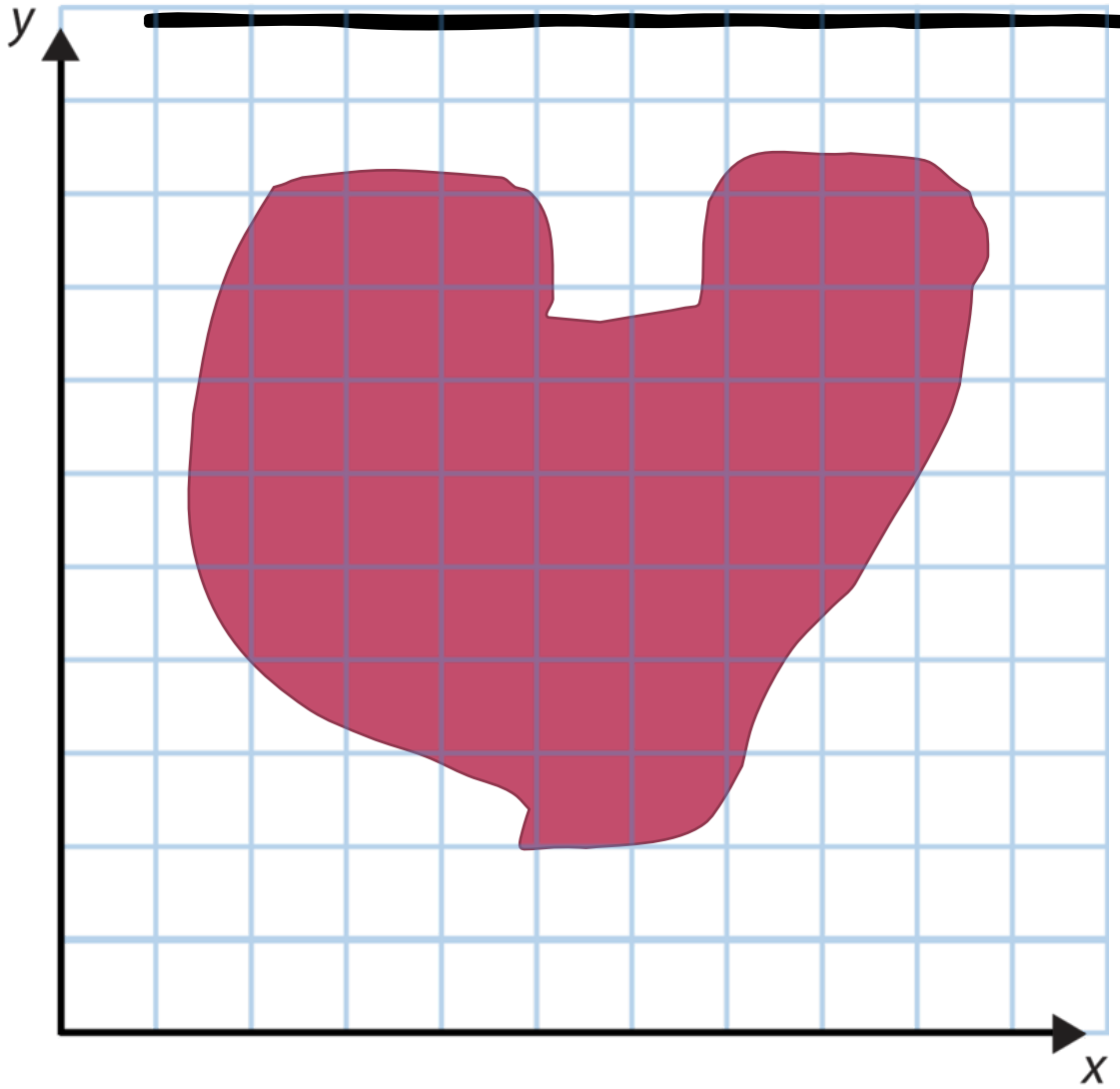

Sales of Product A and Product B
Product A
Product B


Types of Transportation to School
Bus : 35 %
Bicycle : 40 %
Walking : 10 %
Car : 15 %
Bicycle
Car
Walking
Bus


Profit v Cost v Probability of Success
Profit (USD)
Costs (USD)
Bubble Area is proportional to the probability of success
LEGEND:
Product A
Product B
Product C
Product D
Product E
Product F
Product G

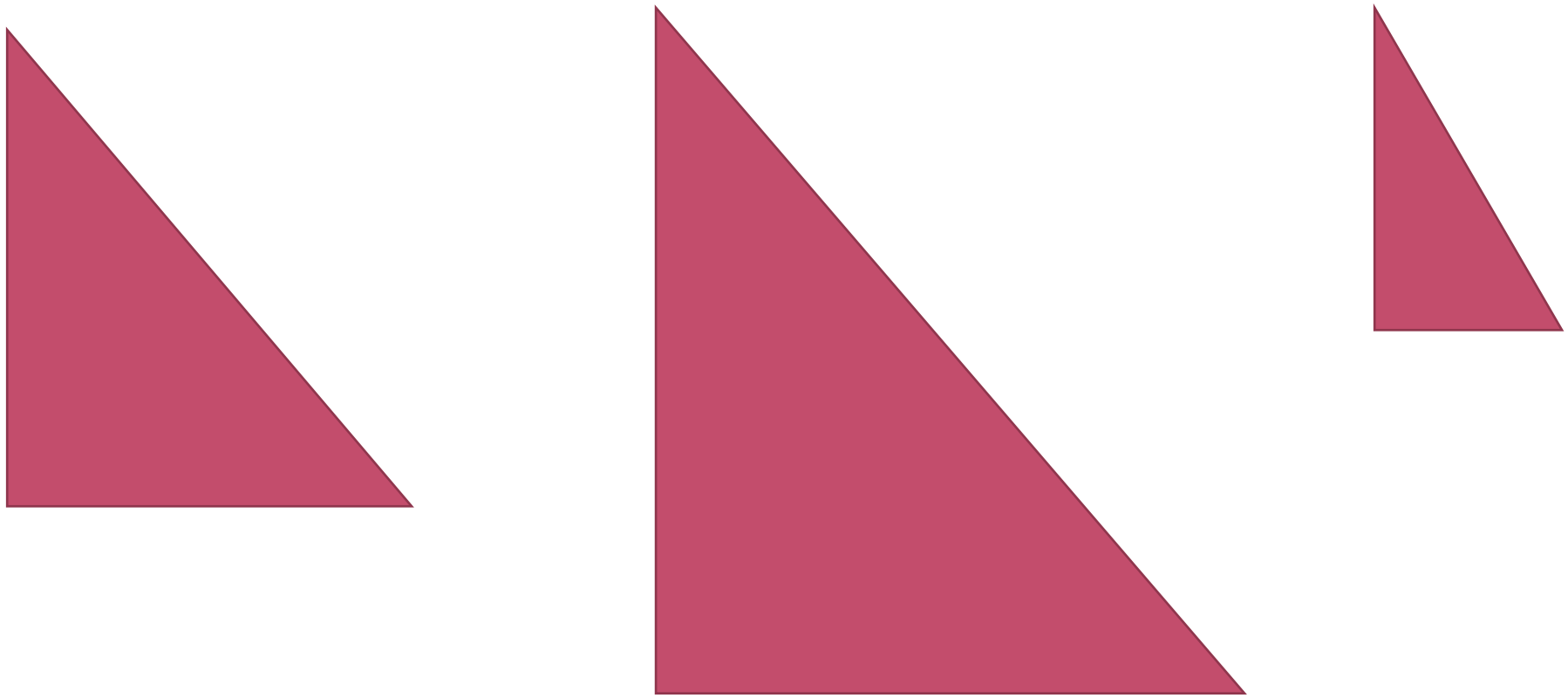
Area

Pick's formula

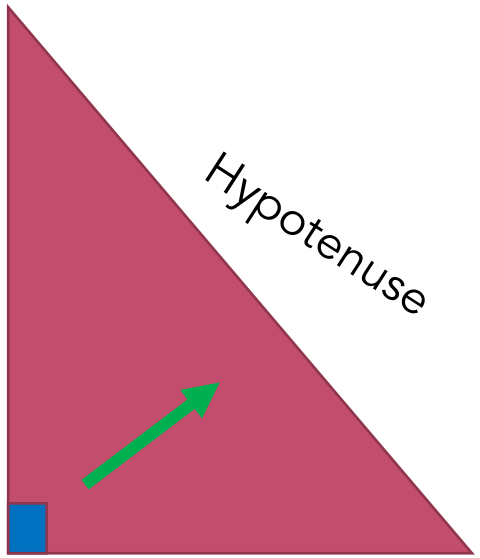


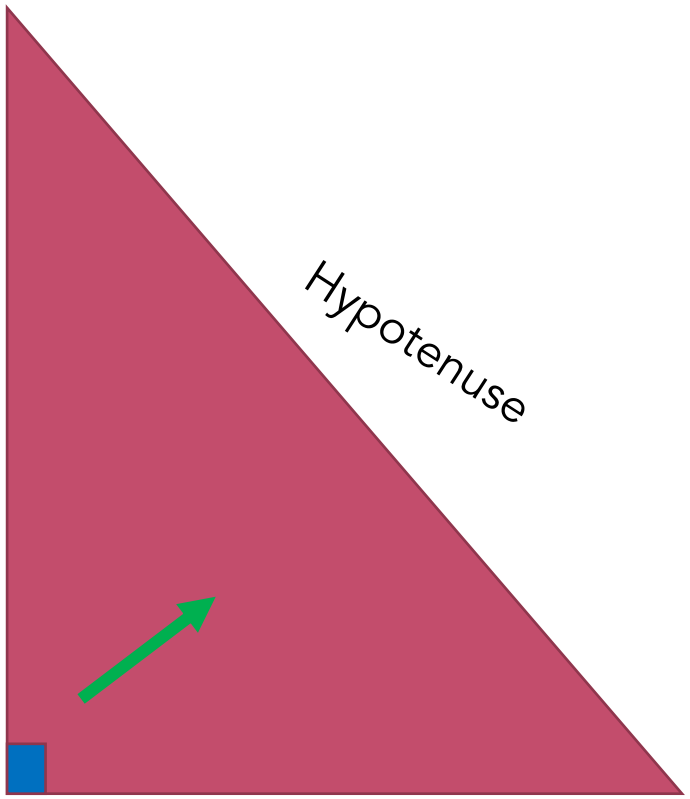
Area = C + ½ E - 1

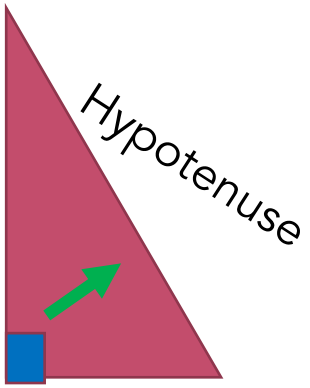
Find the length of a side



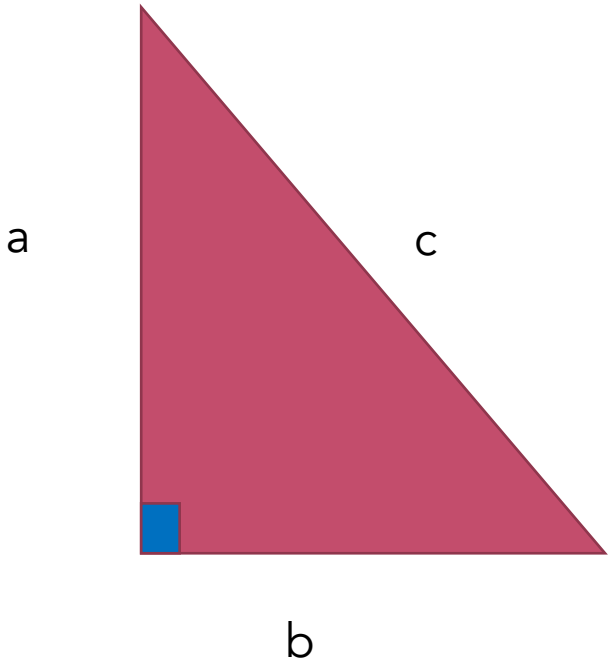
Find the length of a side

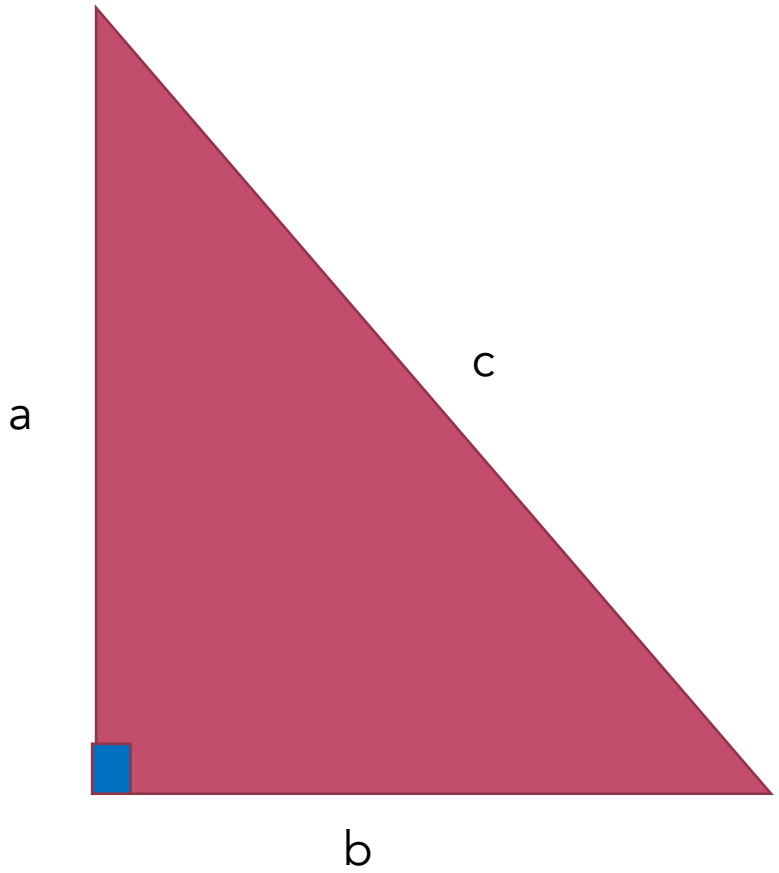


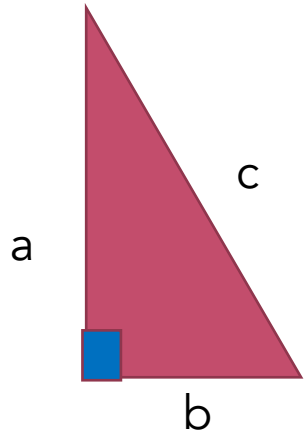




Find the length of a side



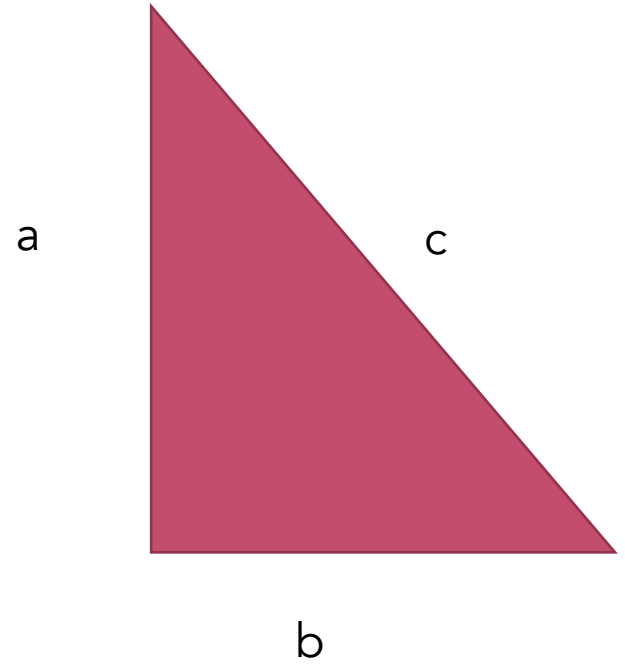




$$a_2 + b_2 = c_2$$

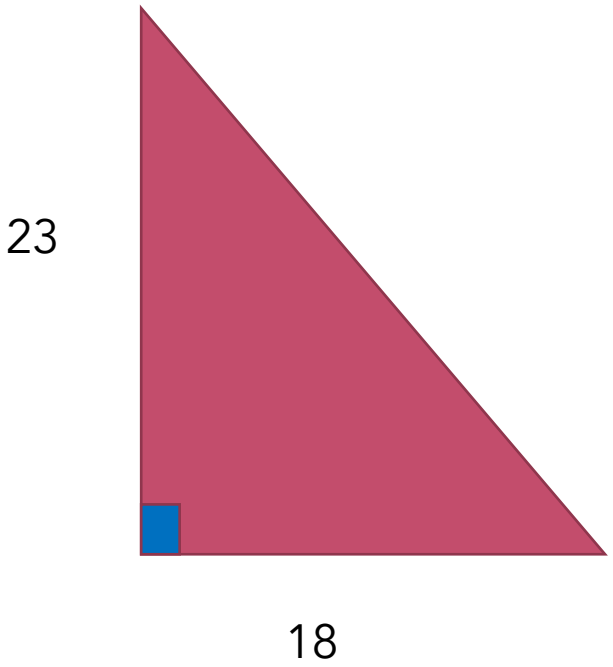
$$c_2 - b_2 = a_2$$

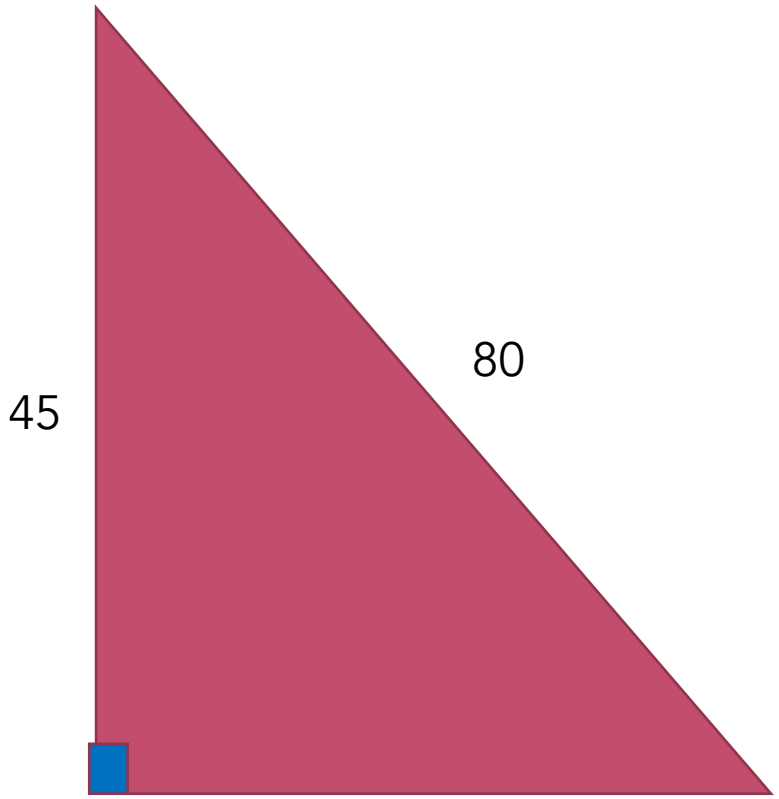
$$c_2 - a_2 = b_2$$

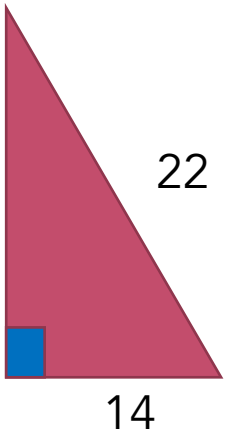


$$\sqrt{}$$

Find the length of a side







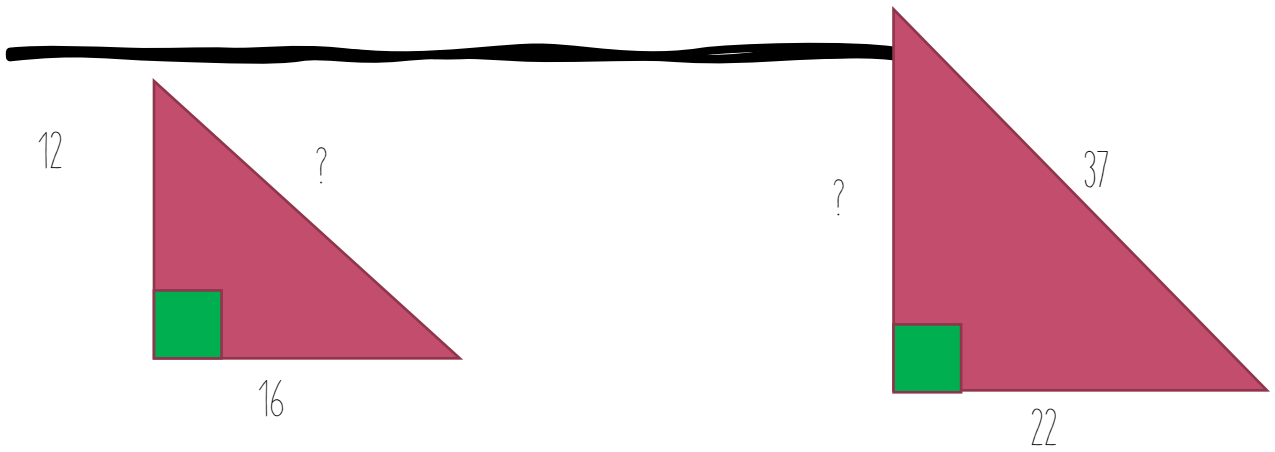
Math Online Feb. 1

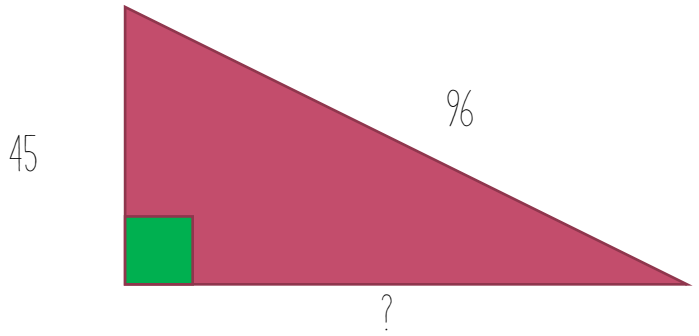
Review

1/5 * 1/8 = 24/160 ÷ 4/11 = 6/9 - 1/14 =

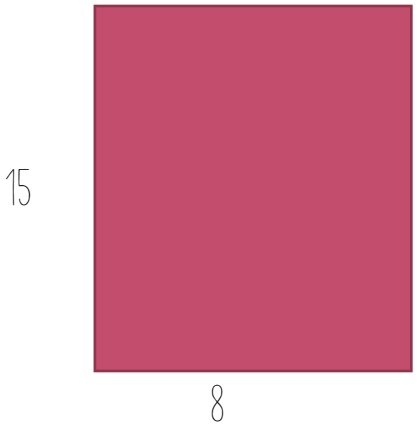
Turn into a percentage: 3/17 = 4:7 =

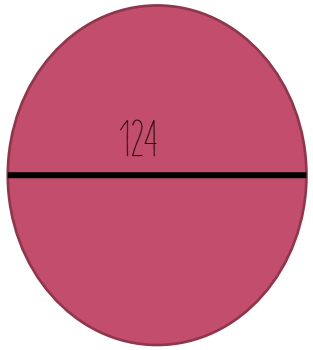
Find the length of the missing side

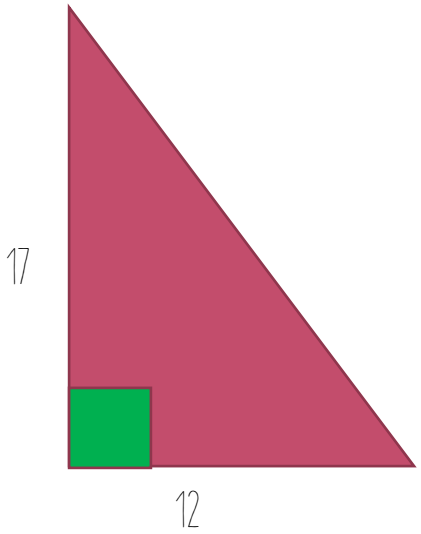


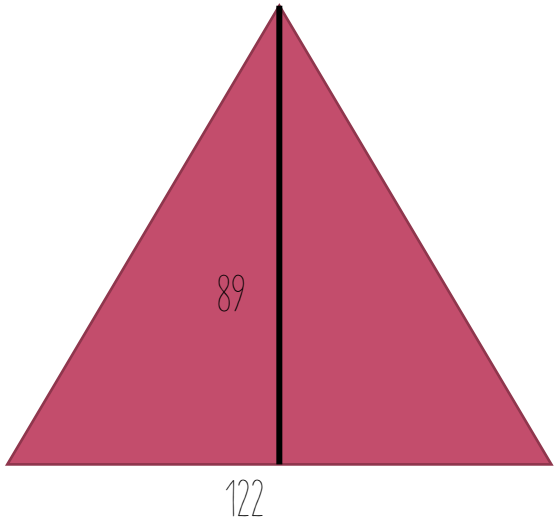


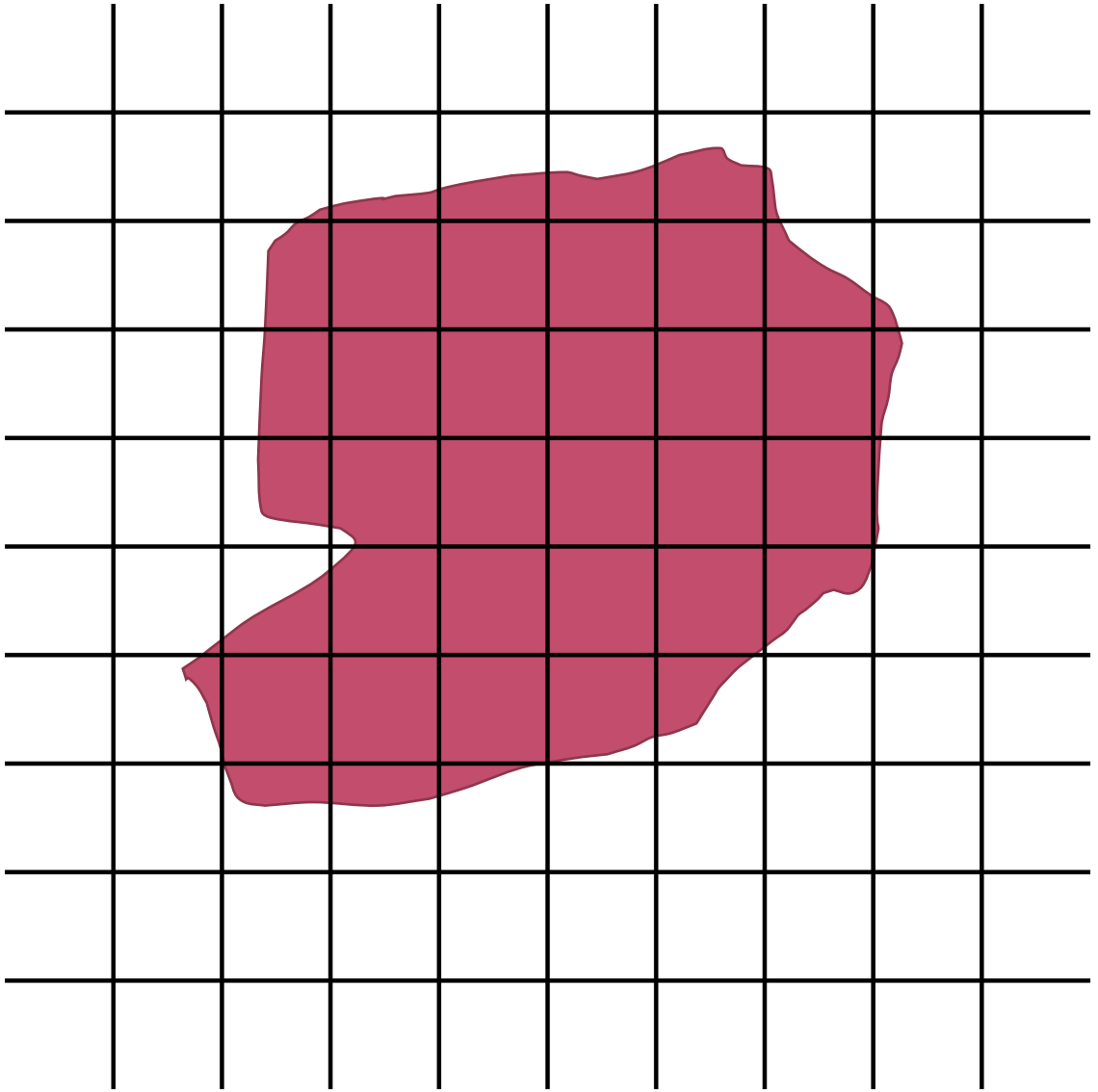
Find the area



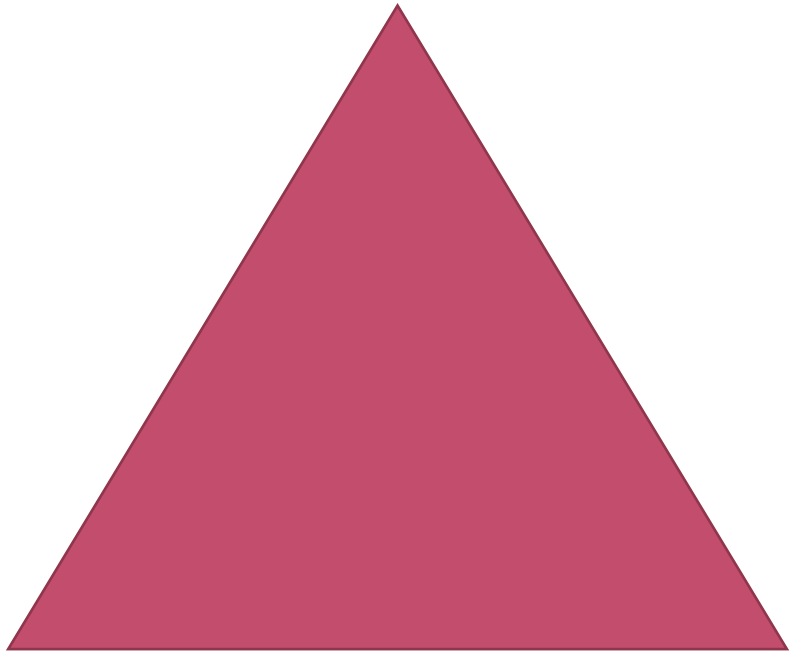


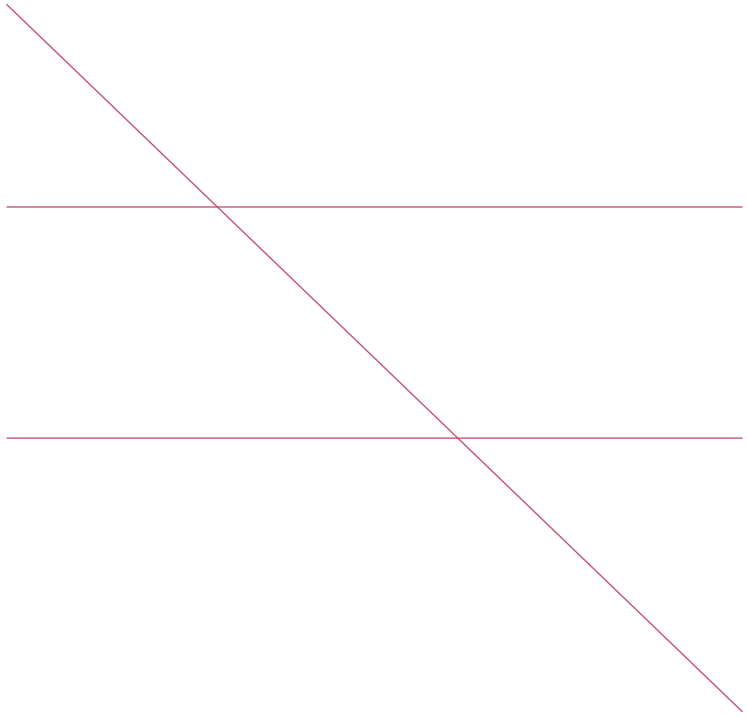




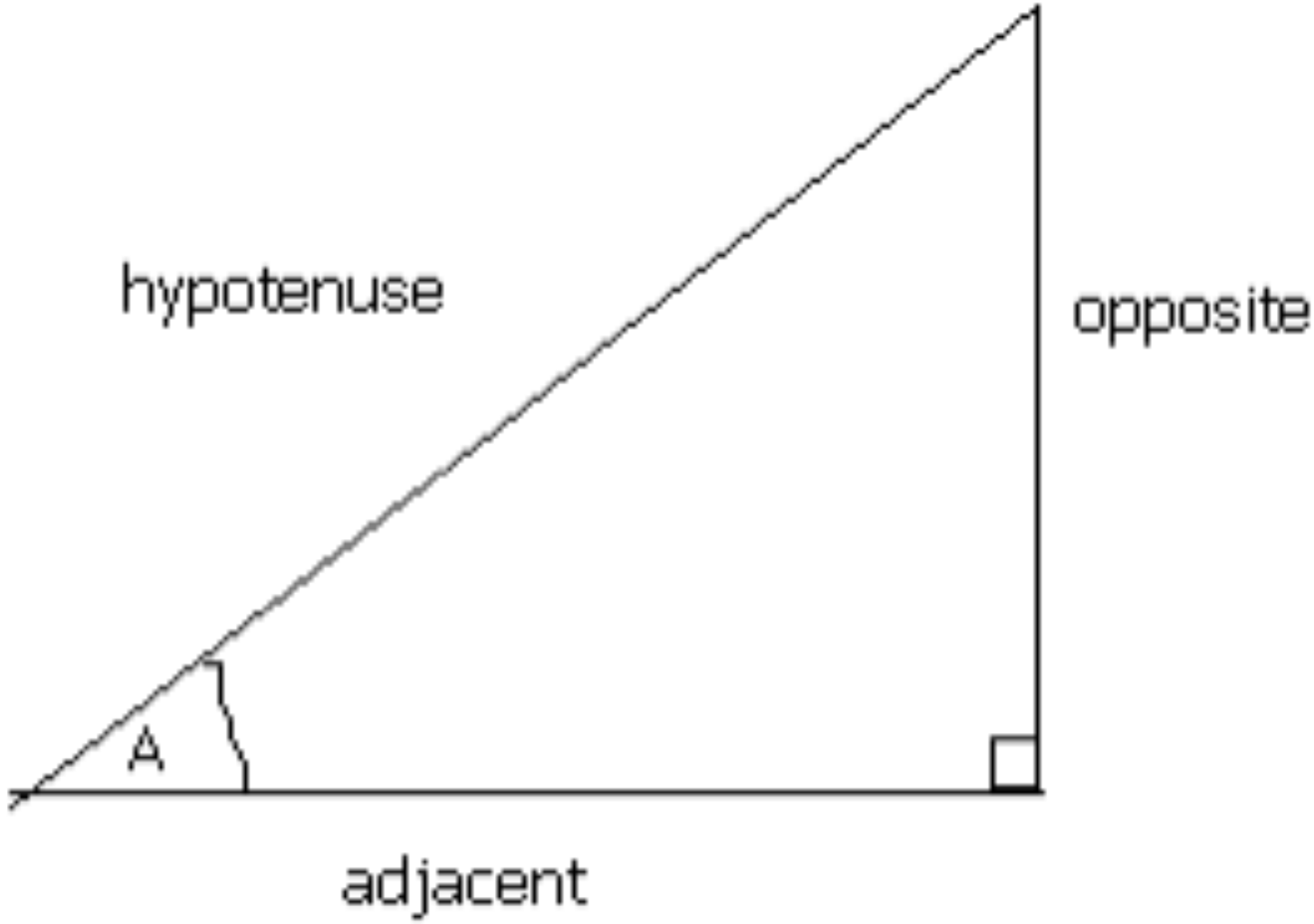


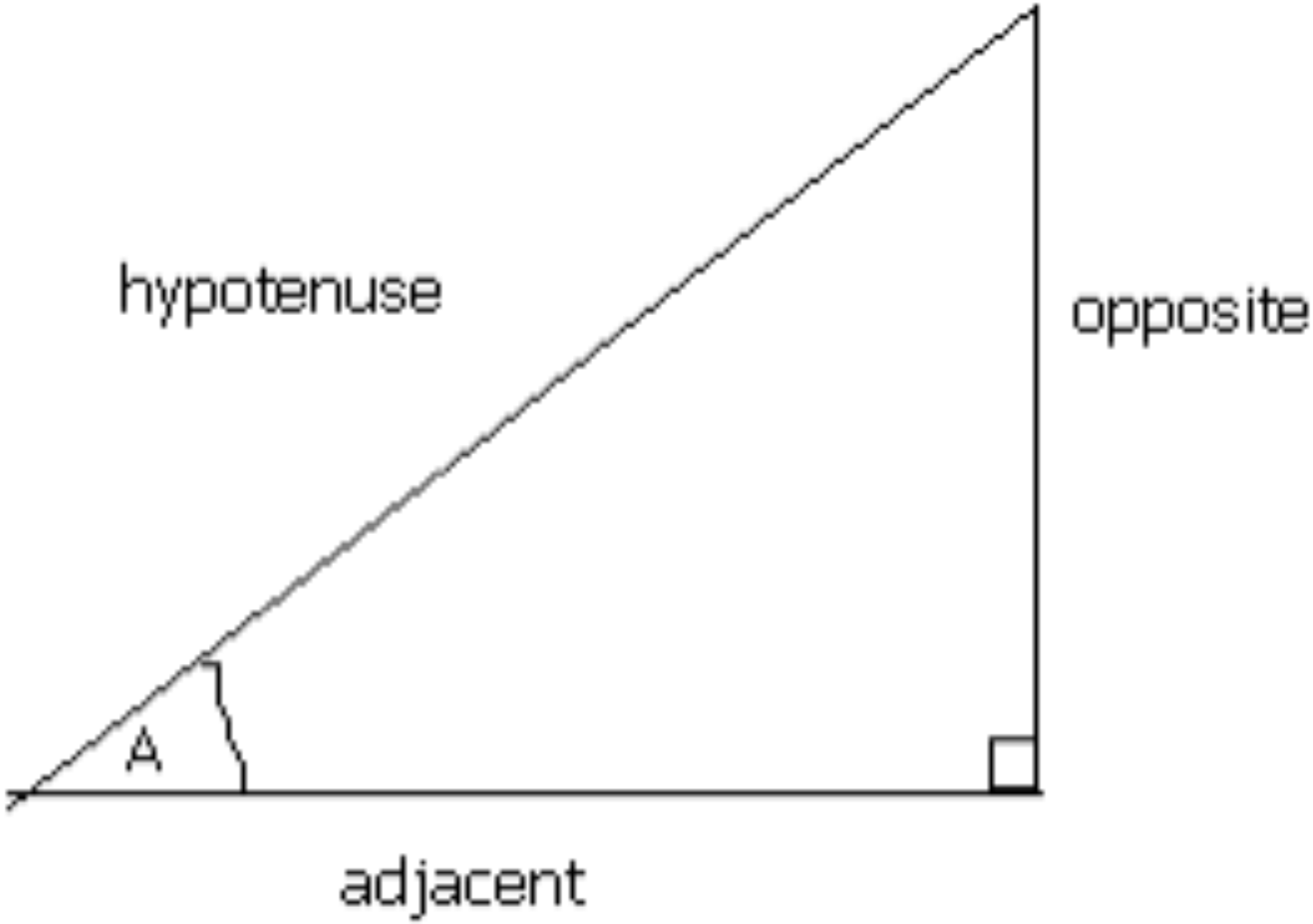
Angles






Αα ALPHA
Ββ BETA
Γγ GAMMA
Δδ DELTA
Εε EPSILON
Ζζ ZETA
Ηη ETA
Θθ THETA
Ιι IOTA
Κκ KAPPA
Λλ LAMBDA
Μμ MU
Νν NU
Ξξ XI
Οο OMICRON
Ππ PI
Ρρ RHO
Σσς SIGMA
Ττ TAU
Υυ UPSILON
Φφ PHI
Χχ CHI
Ψψ PSI
Ωω OMEGA


hypotenuse
opposite
A
adjacent

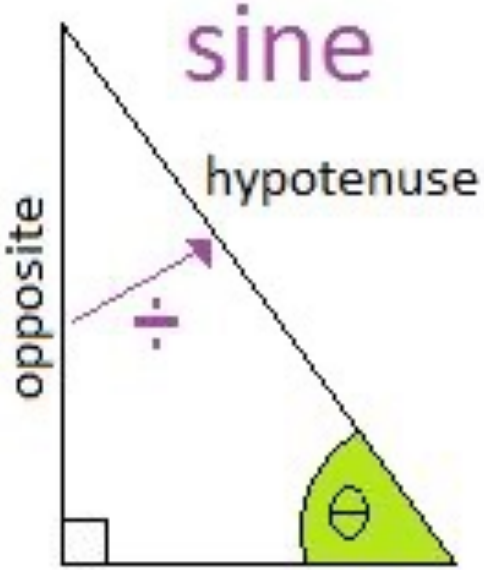

hypotenuse
opposite
A
adjacent

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

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

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

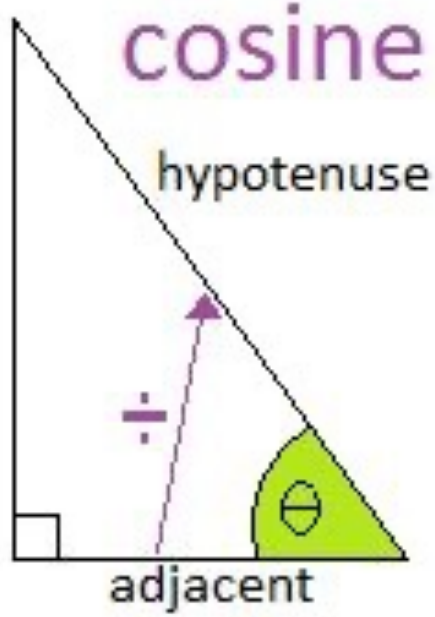
sine



$$\frac{\text{opposite}}{\text{hypotenuse}}$$

SOH

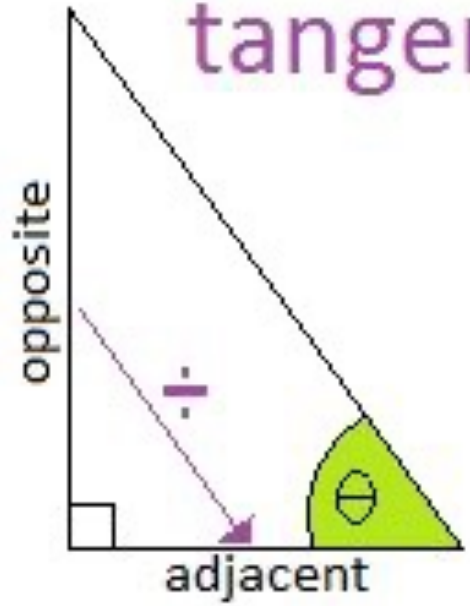
cosine



$$\frac{\text{adjacent}}{\text{hypotenuse}}$$

CAH

tangent



$$\frac{\text{opposite}}{\text{adjacent}}$$

TOA


0
( ) mc m+ m- mr AC +/- % ÷
2nd x² x³ xʸ eˣ 10ˣ 7 8 9 ×
1/x ²√x ³√x ʸ√x ln log₁₀ 4 5 6 −
x! sin cos tan e EE 1 2 3 +
Rad sinh cosh tanh π Rand 0 . =


iPad
8:42 AM
93%
Remove Ads
0
Layout
M+
M-
MR
MS
MC
+/-
(
)
%
C
1/x
√
x^2
x^3
x^y
7
8
9
÷
x!
ln
log
log₂
e^y
4
5
6
×
sin
sin⁻¹
sinh
sinh⁻¹
e
1
2
3
-
=
cos
cos⁻¹
cosh
cosh⁻¹
π
E
0
.
+
tan
tan⁻¹
tanh
tanh⁻¹
deg
rad

Steps for using SINE

Using scientific calc.

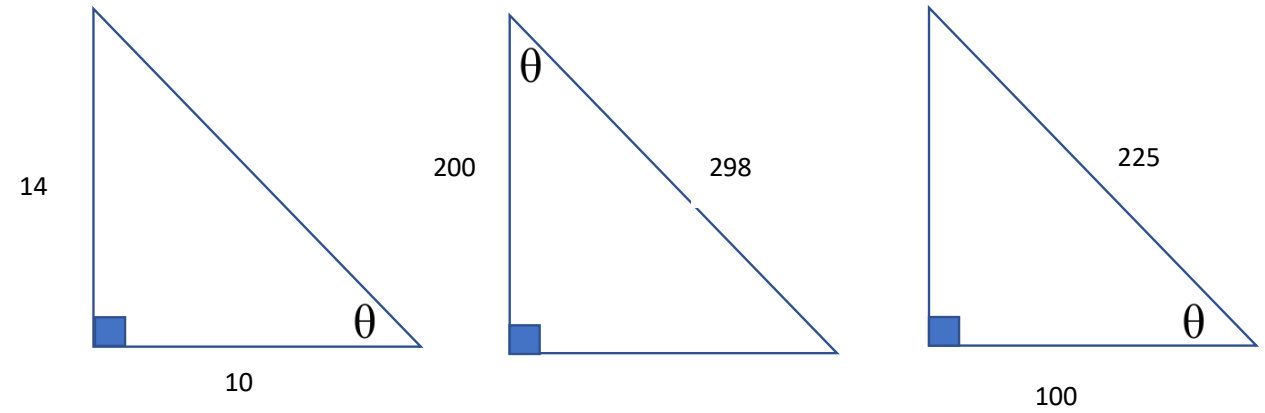
1- Divide opposite by hypotenuse

2- Press $\sin^{-1}$ (second level)

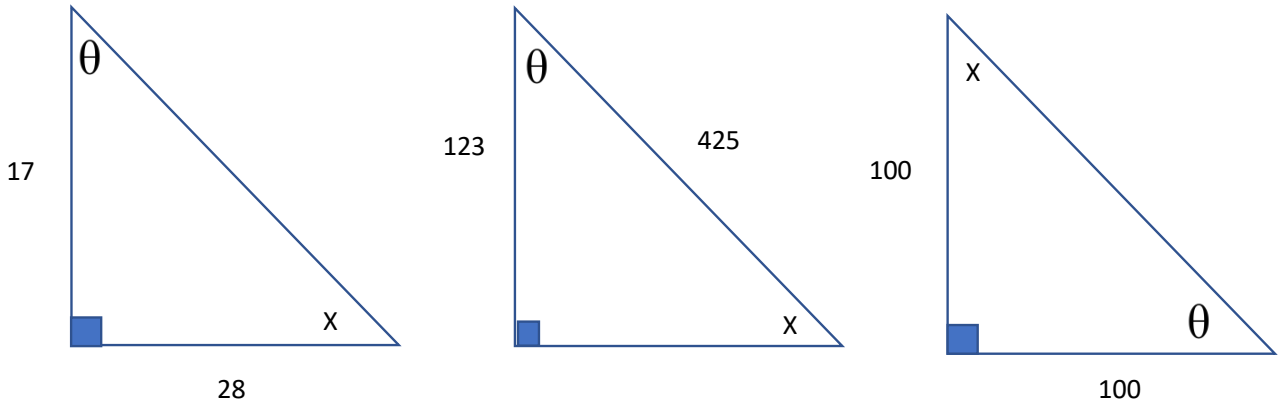
That is the degree of the angle!

Math Online March1, 2023

Label the sides and find the missing angle:



Label the sides and find the missing angle and the degrees for X:



Probability

Coins or dice

Tree

4- Way

Candies in a dish (Non-replacing)

Magic doors

6-49

1 in 13,983,816

or .00000007

In a typical 6/49 game, each player chooses six distinct numbers from a range of 1-49. If the six numbers on a ticket match the numbers drawn by the lottery, the ticket holder is a jackpot winner—regardless of the order of the numbers. The probability of this happening is **1 in 13,983,816**.

Math – March 15th

Probability

1- Take 20 coins and drop them on a table. Make a list of how many heads and how many tails.

2- Repeat 20 times.

3- Make an observation about probability.

	HEADS	TAILS
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		

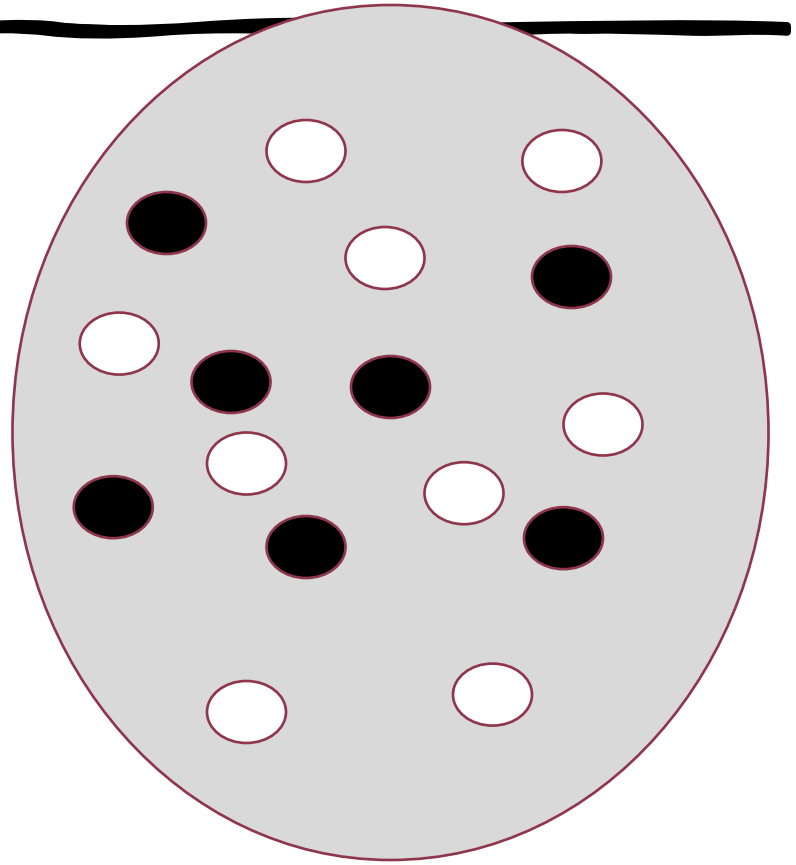
Total	HEADS	TAILS

What does this experiment say about probability?

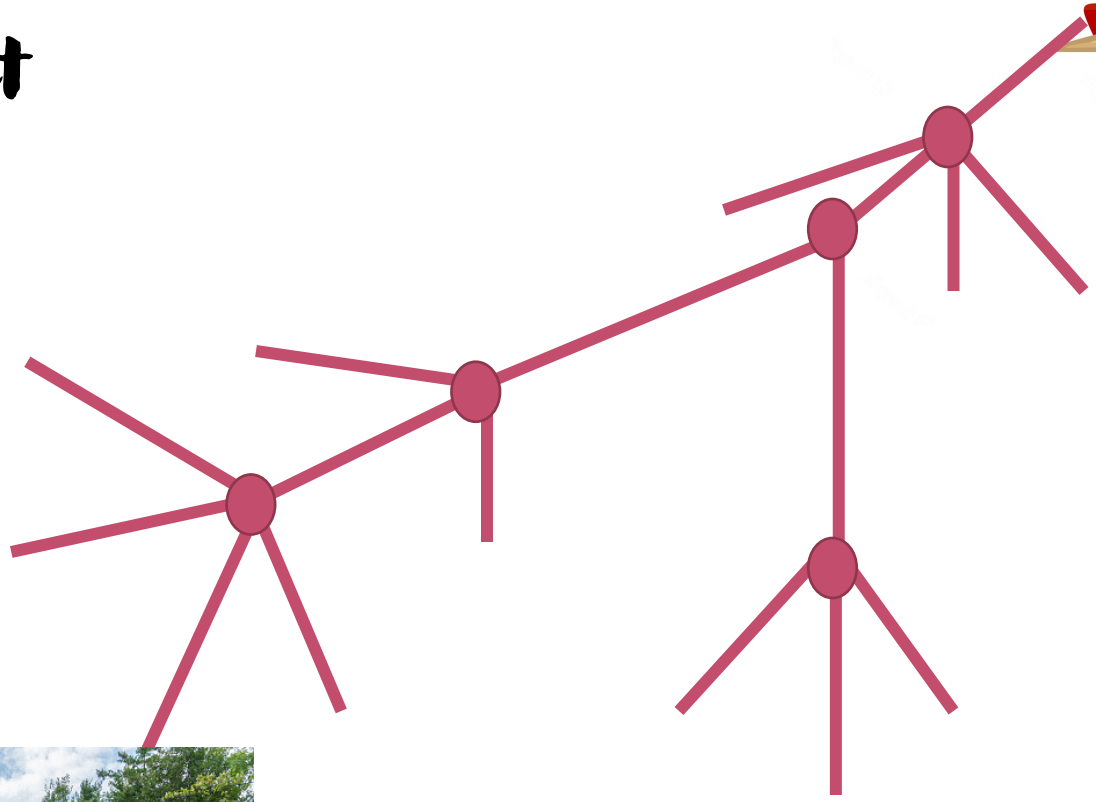
Candies in a dish

What is the probability of picking:

A black candy, a white candy, a white candy, a black candy, and then a white candy?



Stef is coming home! What is the probability that he makes all the correct choices?



Deviation

How scattered your data is or how far each value is from the average.

Standard deviation

1- Find the mean of the values

2- Subtract the mean from each value

3- Square the results for each

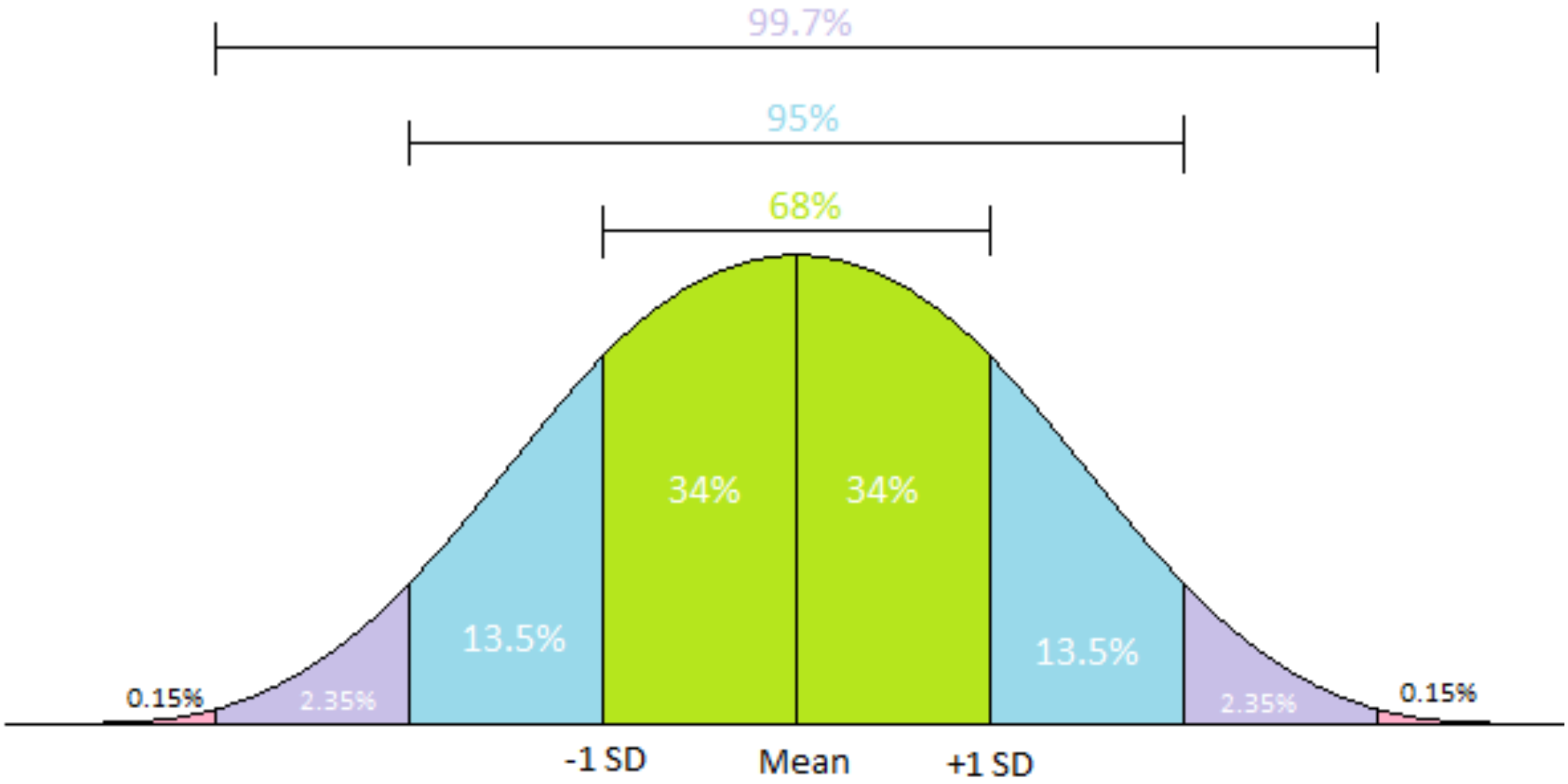
4- Add all the squared results

5- Find the mean of the result

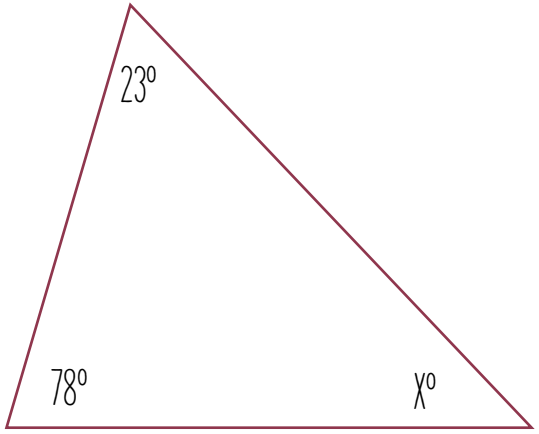
6- Squareroot it.

7- This answer is how much each value deviates from the mean

$$\sigma = \sqrt{\frac{1}{n}\sum_{i=1}^{n}(x_i - \bar{x})^2}$$


99.7%
95%
68%
34%
34%
13.5%
13.5%
2.35%
2.35%
0.15%
0.15%
-1 SD
Mean
+1 SD

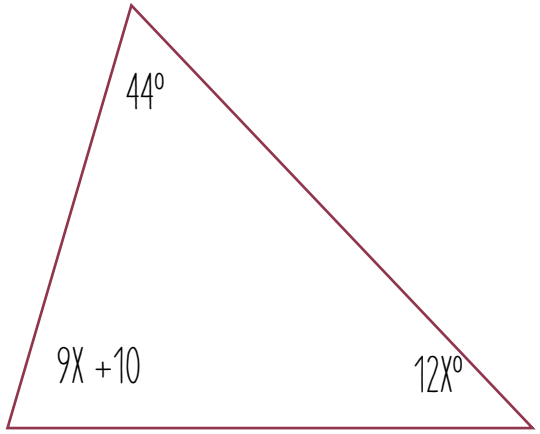
Angles



$23 + 78 + X = 180$

$X = 180 - 23 - 78$

$X = 79$



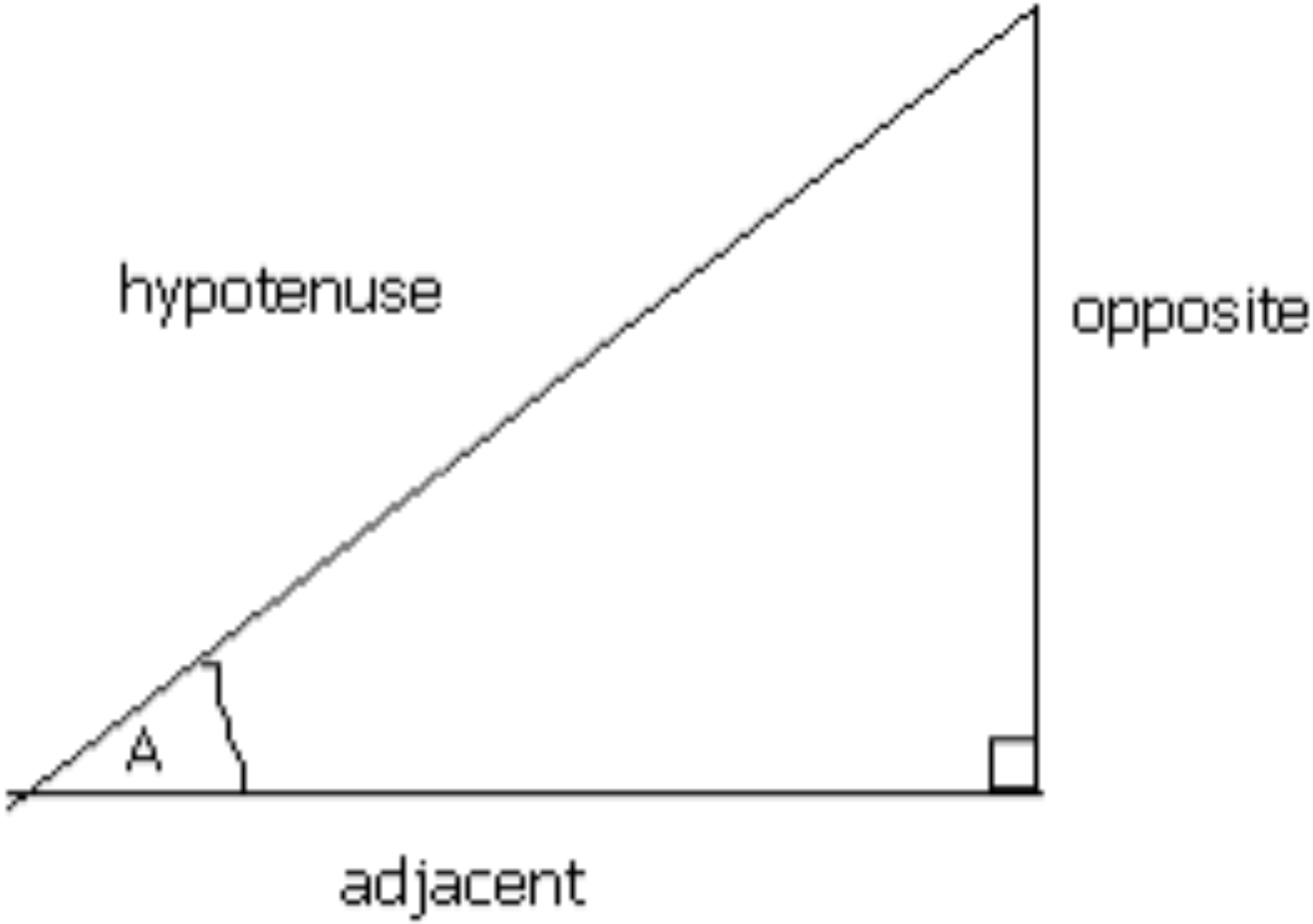
$44 + 9X + 10 + 12X = 180$

$9X + 12X = 180 - 44 - 10$

$21X = 126$

$\frac{21X}{21} = \frac{126}{21}$

$X = 6$


hypotenuse
opposite
A
adjacent

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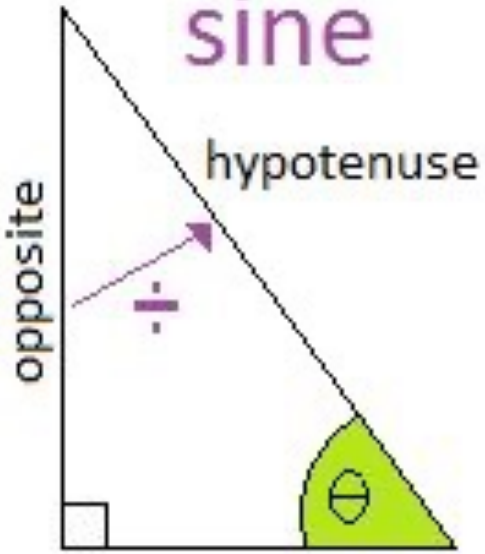
$$\tan\theta = \frac{\text{Opposite}}{\text{Adjacent}}$$

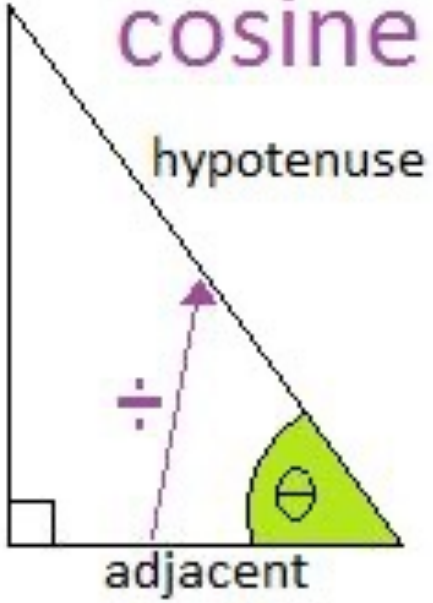
sine



$$\frac{\text{opposite}}{\text{hypotenuse}}$$

SOH

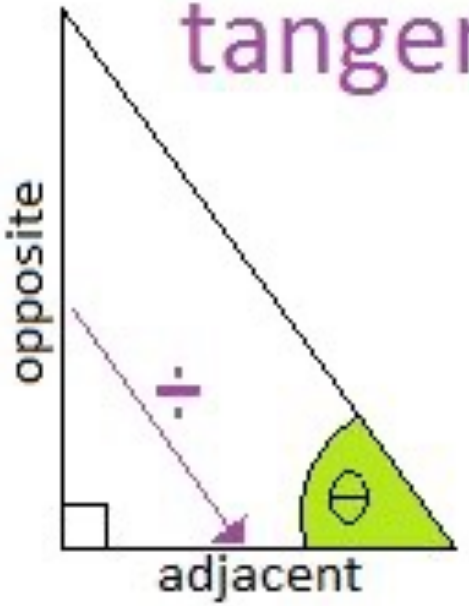
cosine



$$\frac{\text{adjacent}}{\text{hypotenuse}}$$

CAH

tangent



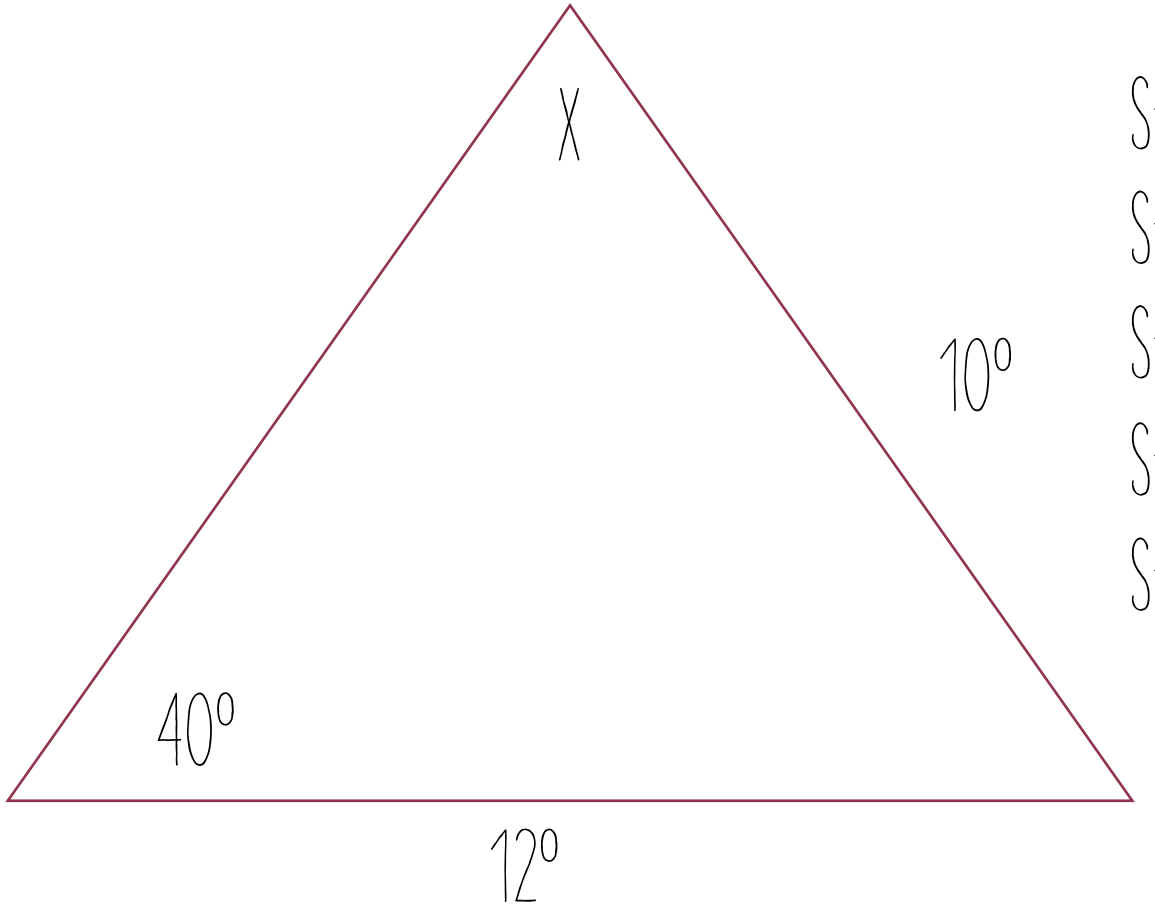
$$\frac{\text{opposite}}{\text{adjacent}}$$

TOA

Law of Sines

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

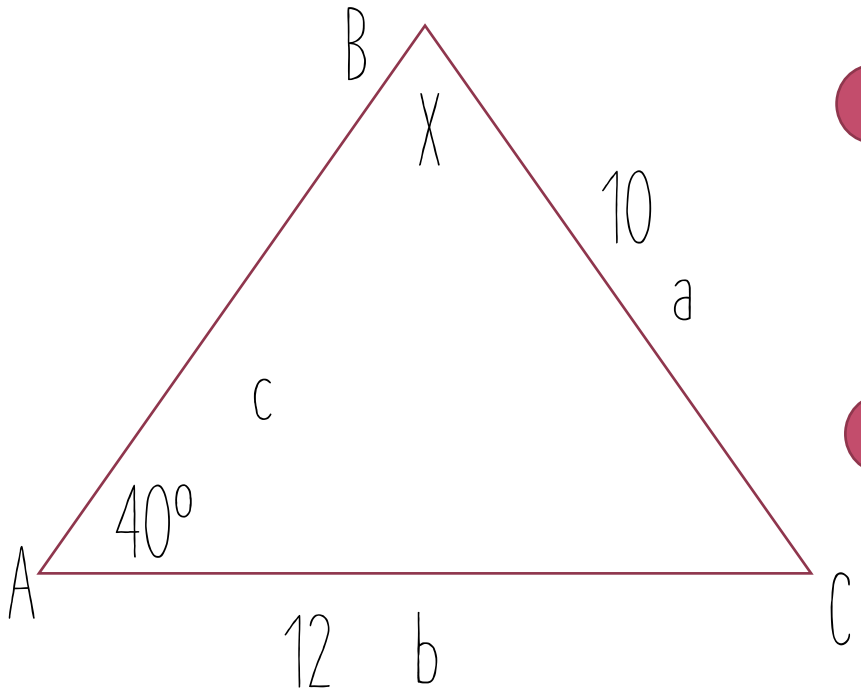
Law of Sines



Step 1 - Label sides and angles
Step 2- choose what part of the formula to use
Step 3- plug in the numbers you know
Step 4- cross multiply
Step 5 - to isolate X multiply by Sin^{-1}

Law of Sines

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$



1. $\frac{\sin 40}{10} = \frac{\sin X}{12} = \frac{\sin C}{c}$

2. $12 \sin 40 = 10 \sin X$

3. $\frac{12 \sin 40}{10} = \frac{10 \sin X}{10}$

4. $1.2 \sin 40 = \sin X$

5. $1.2 \sin 40 = \sin X$
   $.77 = \sin X$

6. $.77 = \sin X$
   $.77 \sin^{-1} = X$

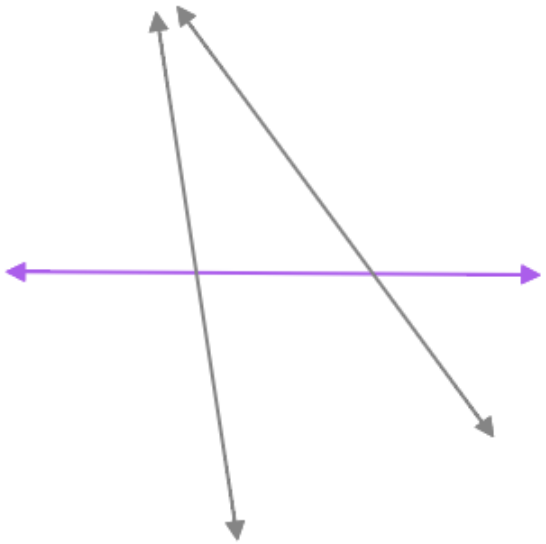
7. $X = 50.47$

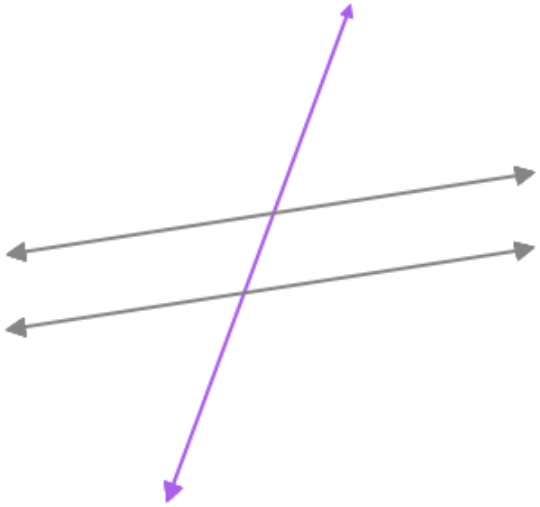
Line

A set of points that extend endlessly

Lines

Straight lines will intersect only once unless they are parallel





Lines

$y = mx + b$

$y = 3x + 18$

m = slope

b = y intercept

Slope = 3

y intercept = 18

Lines

If two lines have the **same slope**, they are **parallel**

e.g. $y = 2/3x + 18$ $y = 2/3x + 23$

$y = 35x + 18$ $y = 35x + 45$

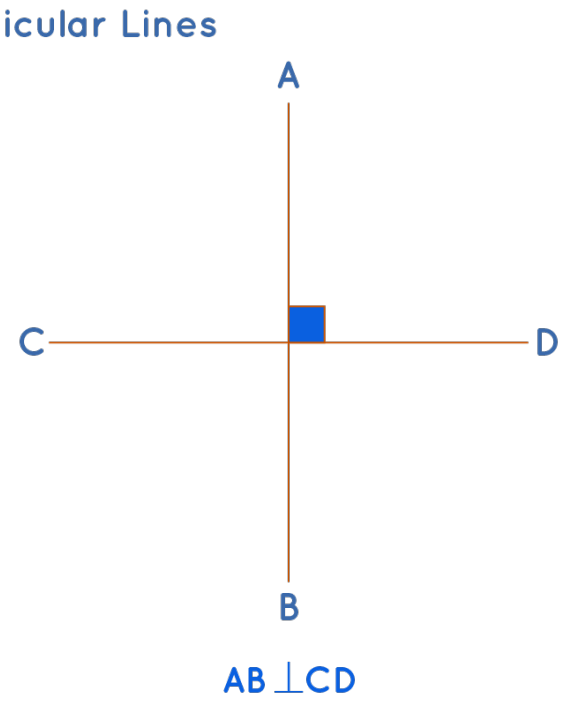
Lines

If the slope two lines are the **negative reciprocal**, then they are **perpendicular**

e.g. $y = -\frac{1}{2}x + 18$ $y = 2x + 18$

$y = \frac{2}{5}x + 18$ $y = -\frac{5}{2}x + 18$

$y = 6x + 18$ $y = -\frac{1}{6}x + 18$



Points

Points have x,y coordinates

e.g. (2,5)

Points on a line

Equation of line is $y = 2x - 29$

Point K is on that line

The y-coordinate for point K is 21.

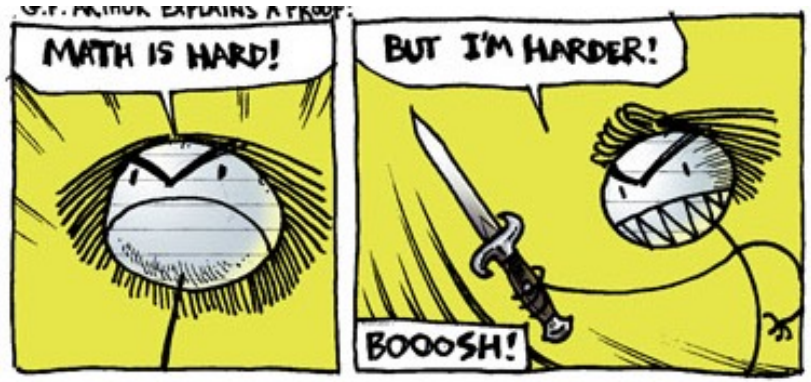
What is the x coordinate for point K?

1- What can you tell me about the sets of lines:

a) $y = 2/3x + 18$ $y = 2/3x + 23$

b) $y = 2/5x + 18$ $y = -5/2x + 18$

c) $y = 5x + 22$ $y = \frac{1}{2}x + 14$



2- Make a chart and draw the graph for

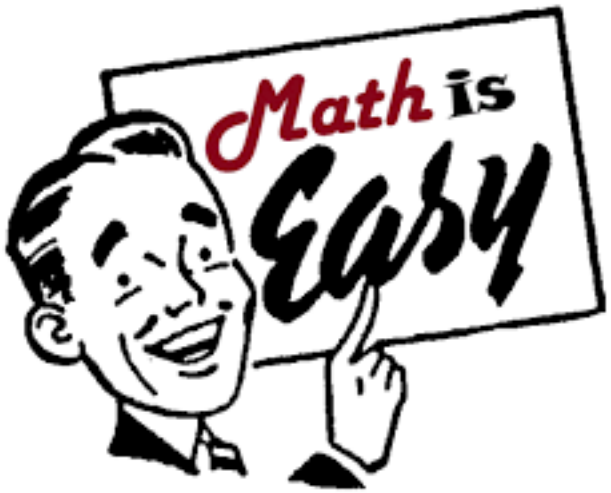
a) $2x - 4y < 24$ b) $-3x = y + 15$ c) $4x - 44 > 2y$

3) Equation of line is $y = 4x + 12$

Point K is on that line

The y-coordinate for point K is 16.

What is the x coordinate for point K?

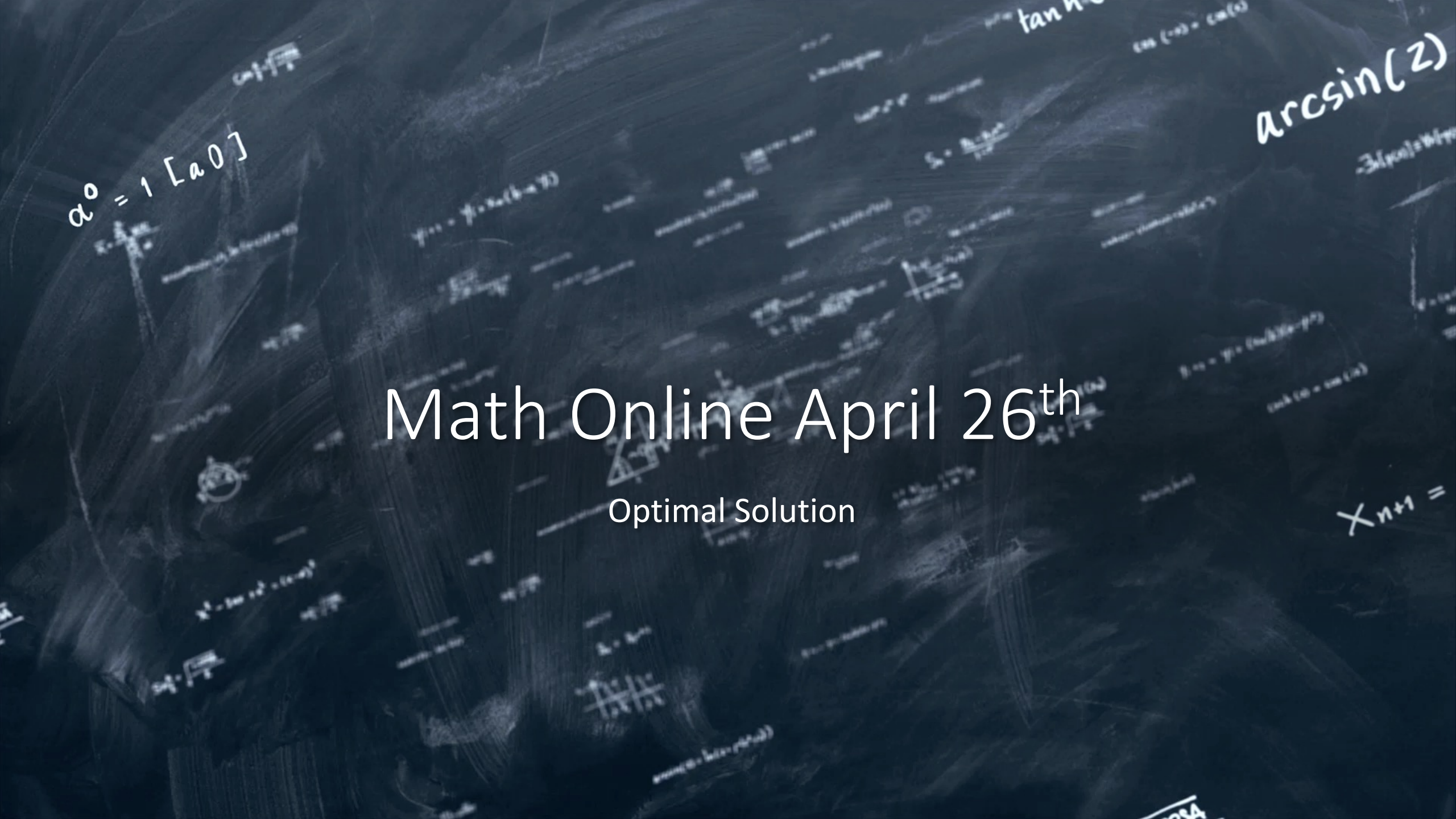


4) Equation of line is $y = -15x + 20$

Point K is on that line

The y-coordinate for point K is 5.

What is the x coordinate for point K?

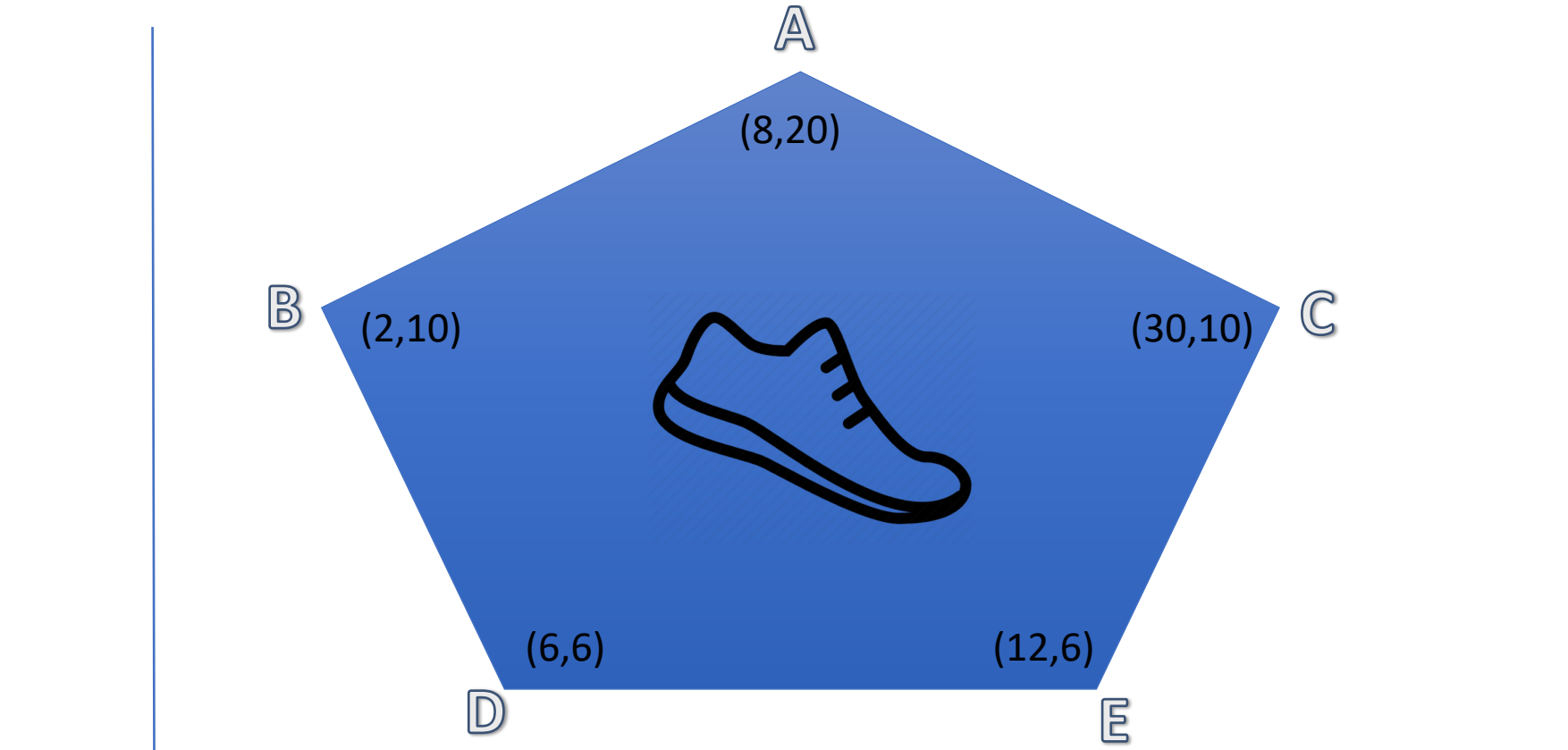


Math Online April 26th

Optimal Solution

Jonny is getting commission for selling shoes.

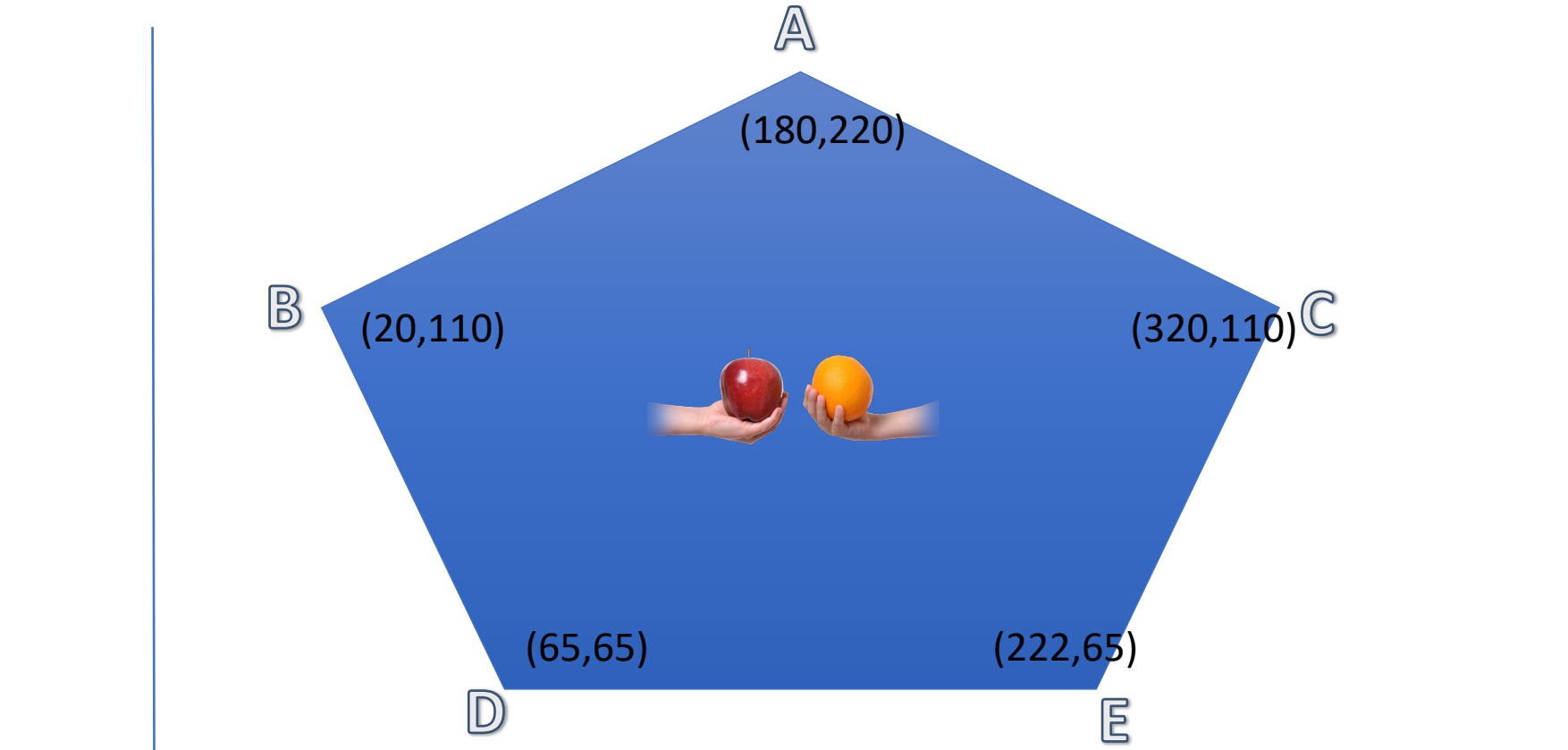
Men's shoes (x) = $1.25/each
Women's shoes (y) = $2.75/each



Jonny has five spots in the store from which he can sell shoes.
What location will give him the most amount of money? How much?
What location will give him the least amount of money? How much?

Roxy sells apples and oranges.

Apples (x) = $.40/each
Oranges (y) = $.55/each



Roxy has five spots in Montreal from which she can sell fruit.
What location will give her the most amount of money? How much?
What location will give her the least amount of money? How much?

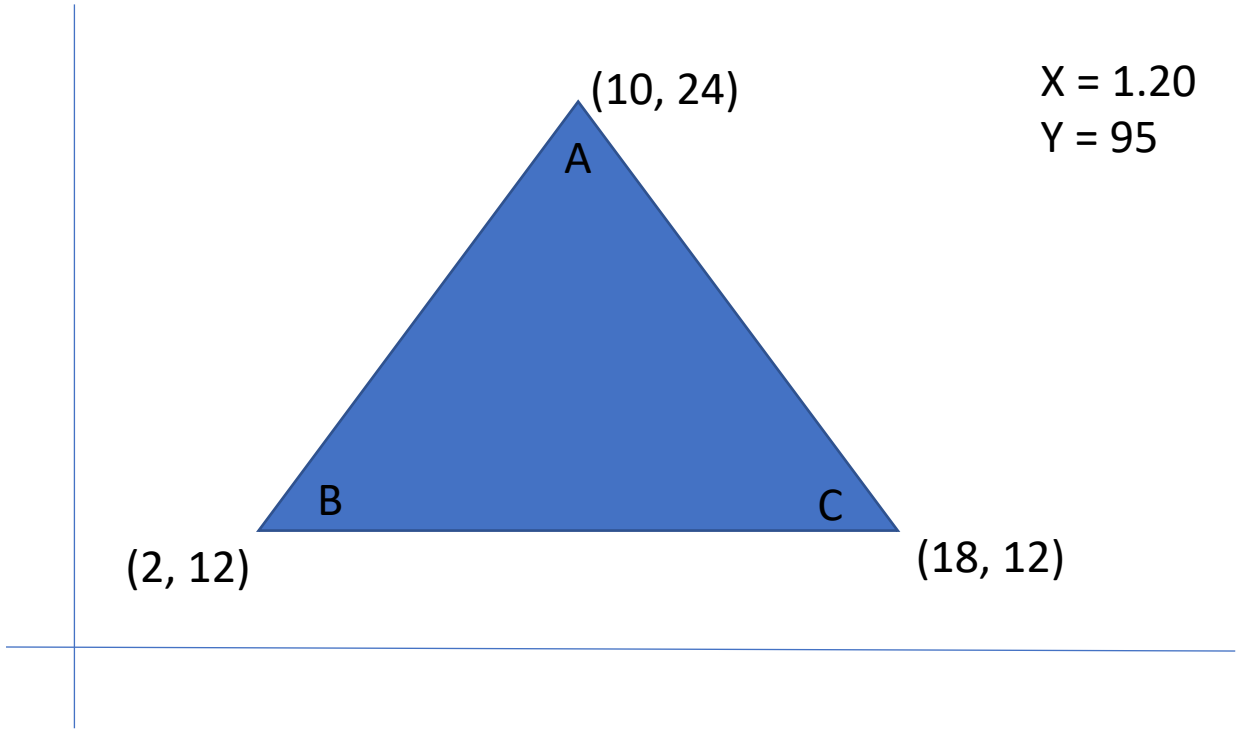
Bob sells worms (x) and grasshoppers (y). He has three stores (A,B,C).

Which store is his most profitable?

Which store is his least profitable one?

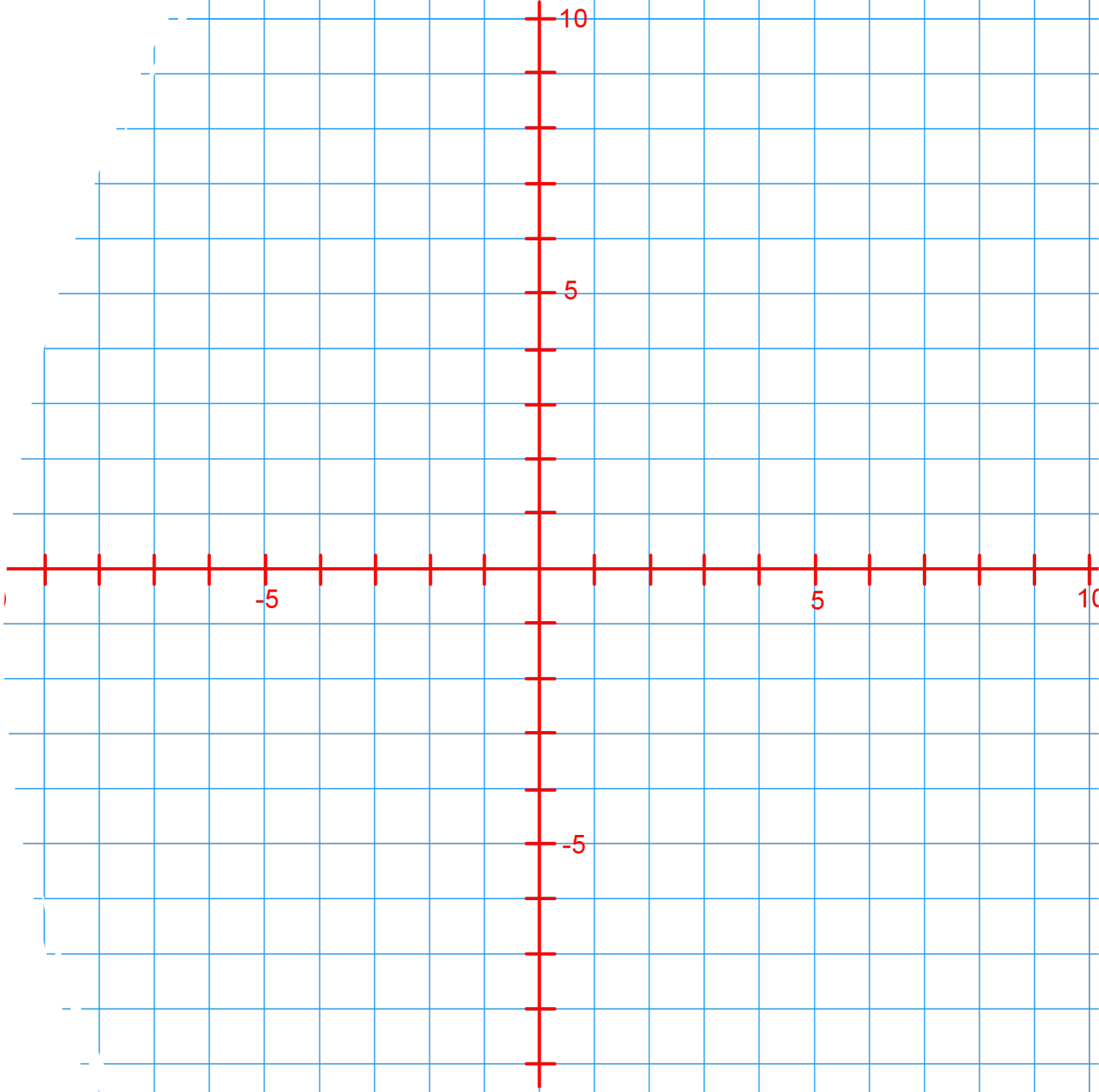
What is the difference between the two.

Bob opens a store at the mid-point of store A & B. What will his sales be?



The equation of the line is 2X + 4Y = 24

If X = $6 and Y = $2, what is the value of each point at the X and Y intercepts?



13. THE GREENHOUSE

Alex wants to buy a greenhouse that has a square base. Two stores sell square-based greenhouses.

The cost of a square-based greenhouse depends on the length of a side of its base.

STORE G

Function g described below can be used to determine the cost of the square-based greenhouse sold at Store G.

$g(x) = a\,x^2$

where x: length of a side of the base of the greenhouse, in metres

$g(x)$: cost of the square-based greenhouse sold at Store G, in dollars

STORE H

Function h described below can be used to determine the cost of the square-based greenhouse sold at Store H.

$h(x) = b\,x^2$

where x: length of a side of the base of the greenhouse, in metres

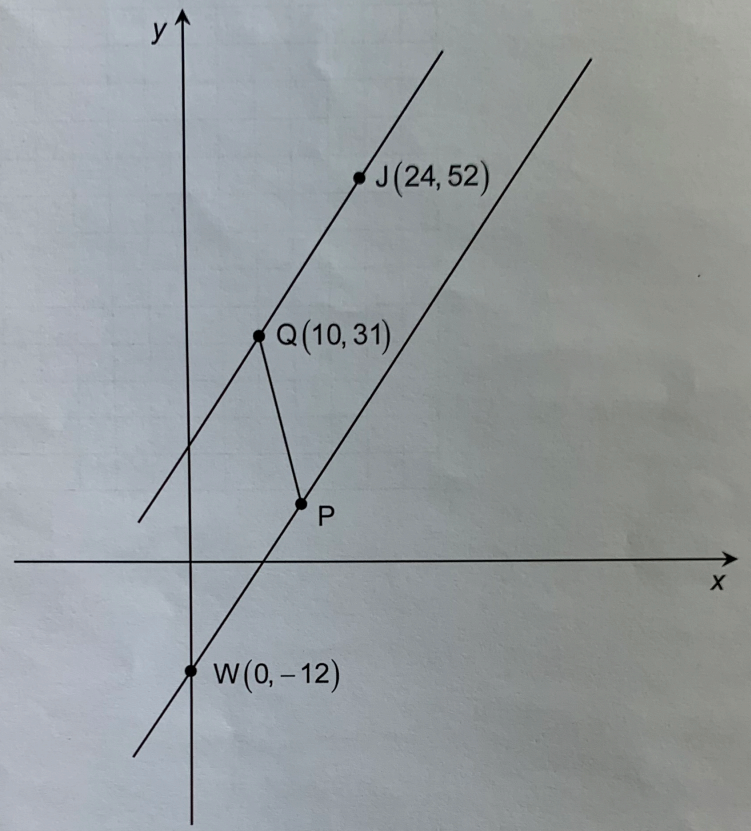
$h(x)$: cost of the square-based greenhouse sold at Store H, in dollars

- A square-based greenhouse whose base has a side length of 3 m costs \$1 755 at Store G.
- A square-based greenhouse whose base has a side length of 2.4 m costs \$1 152 at Store H.
- The greenhouse Alex wants to buy costs \$2 388.75 at Store G.

How much will it cost Alex to buy this greenhouse at Store H?

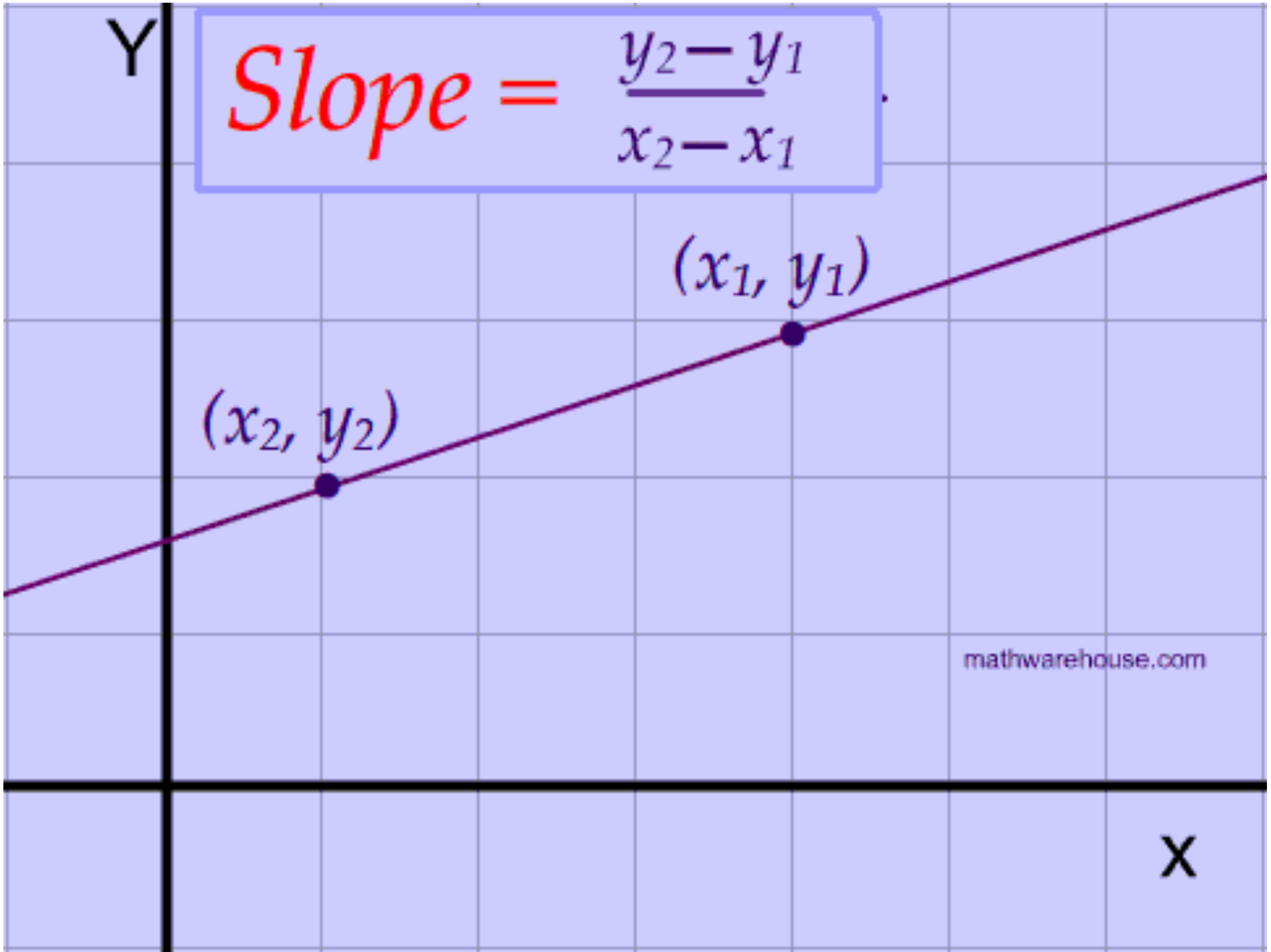
14. LINE SEGMENT QP

Consider lines QJ and WP as well as line segment QP represented below in the Cartesian plane.



- The x-coordinate of point P is 14.
- Lines QJ and WP are parallel lines.

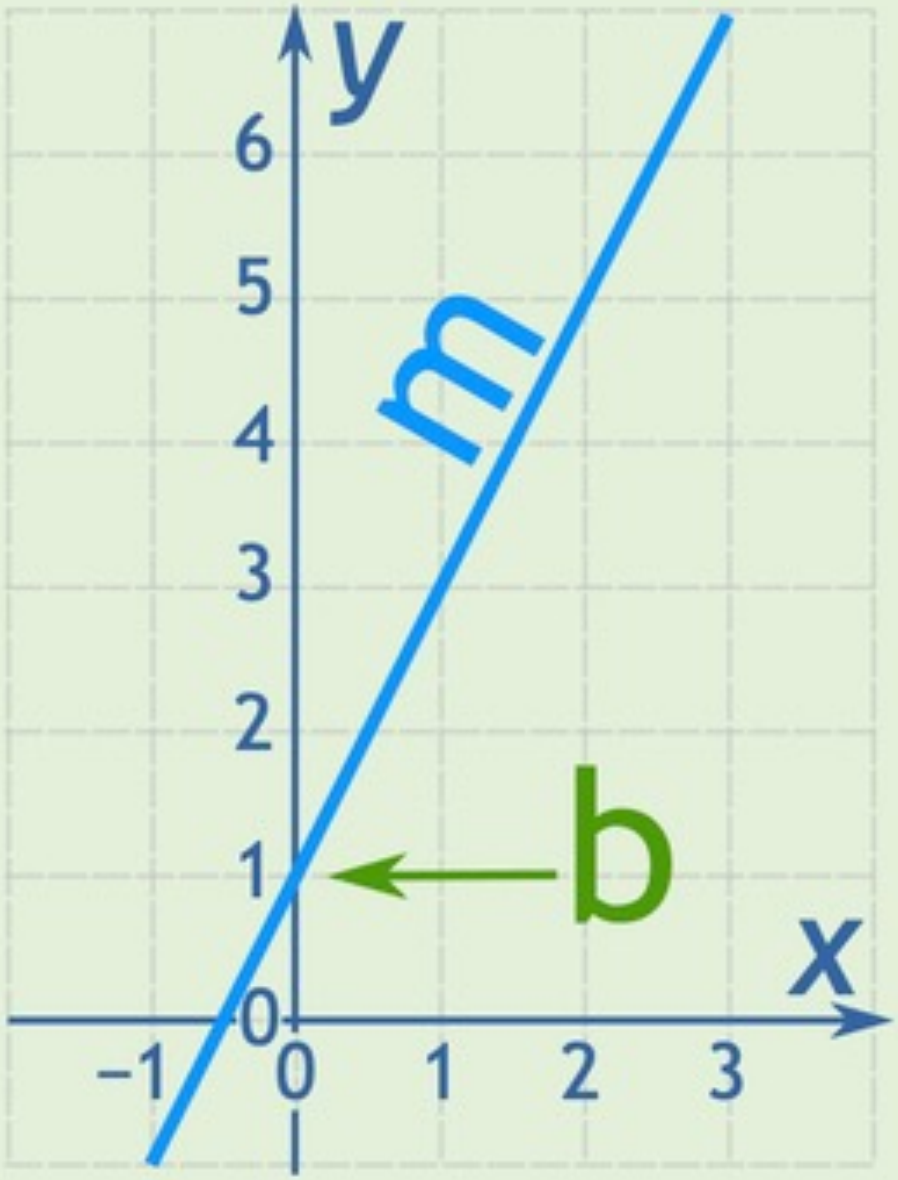
To the nearest hundredth of a unit, what is the length of line segment QP?


Slope = $\frac{y_2 - y_1}{x_2 - x_1}$
(x_1, y_1)
(x_2, y_2)
mathwarehouse.com
Y
X

Slope or Gradient

$$y = mx + b$$

y value when x = 0



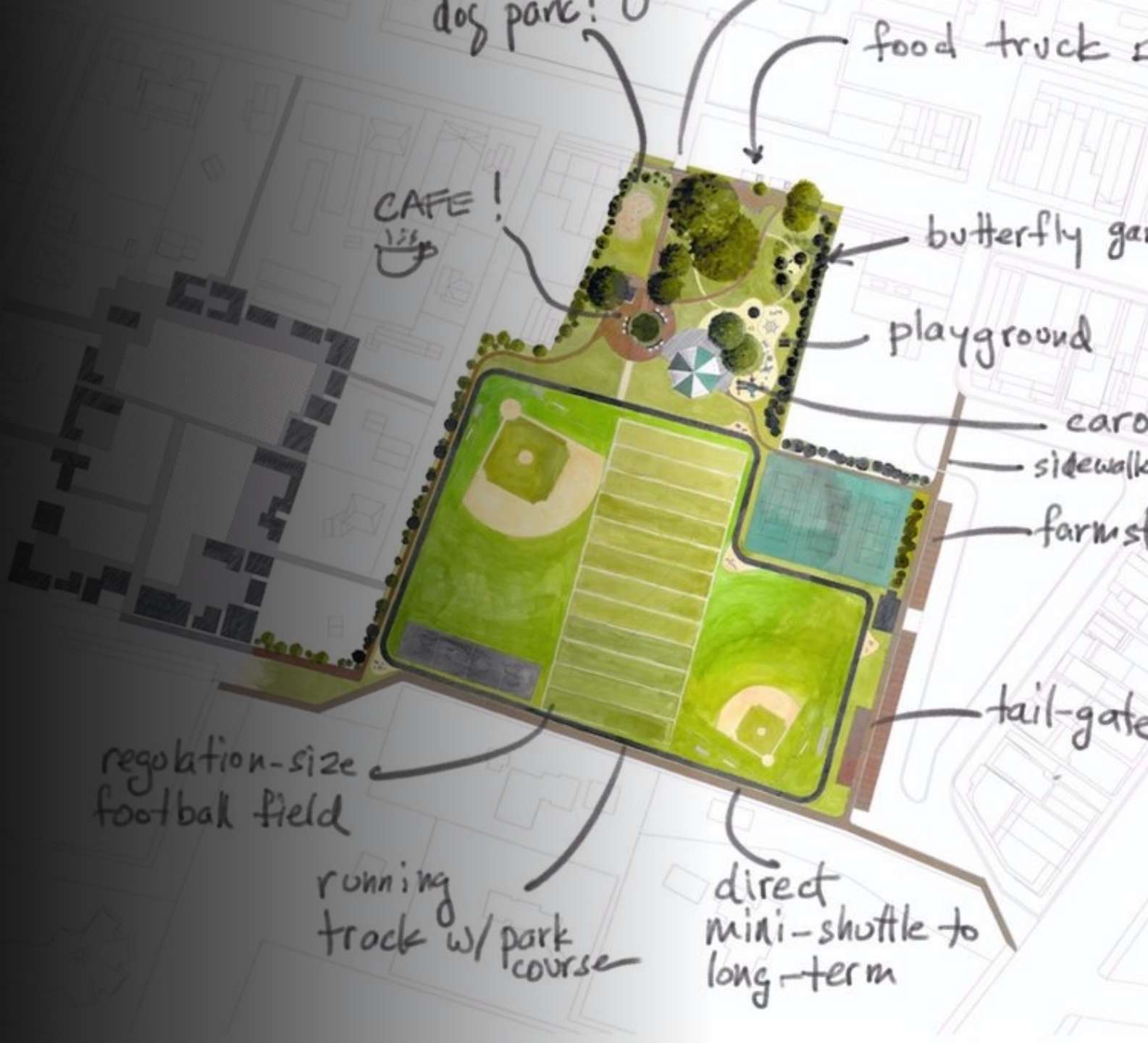
Final Project

Design a:

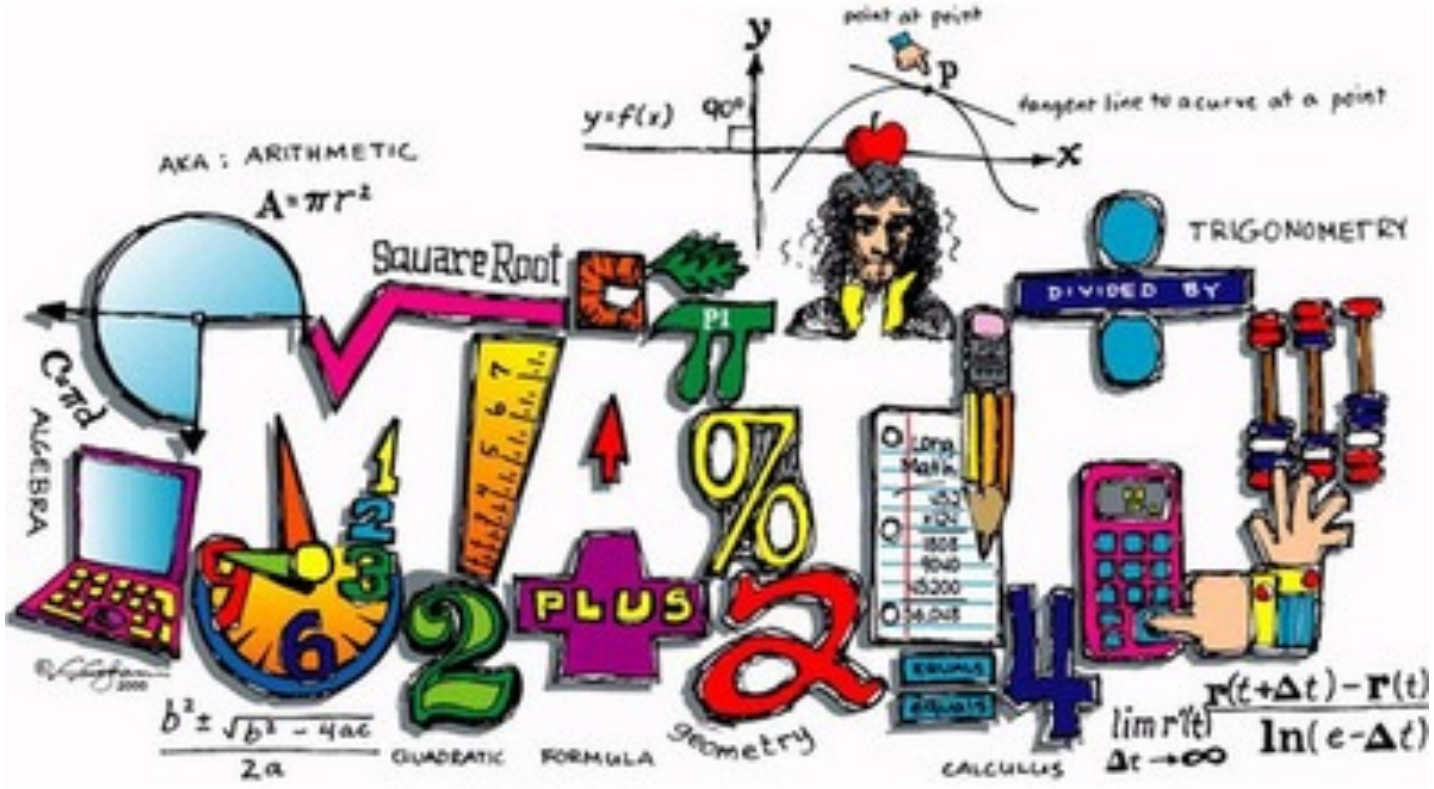
- Building
- Room
- Playground
- Piece of furniture
- Garden
- . . .

Do a rough sketch and submit a proposal

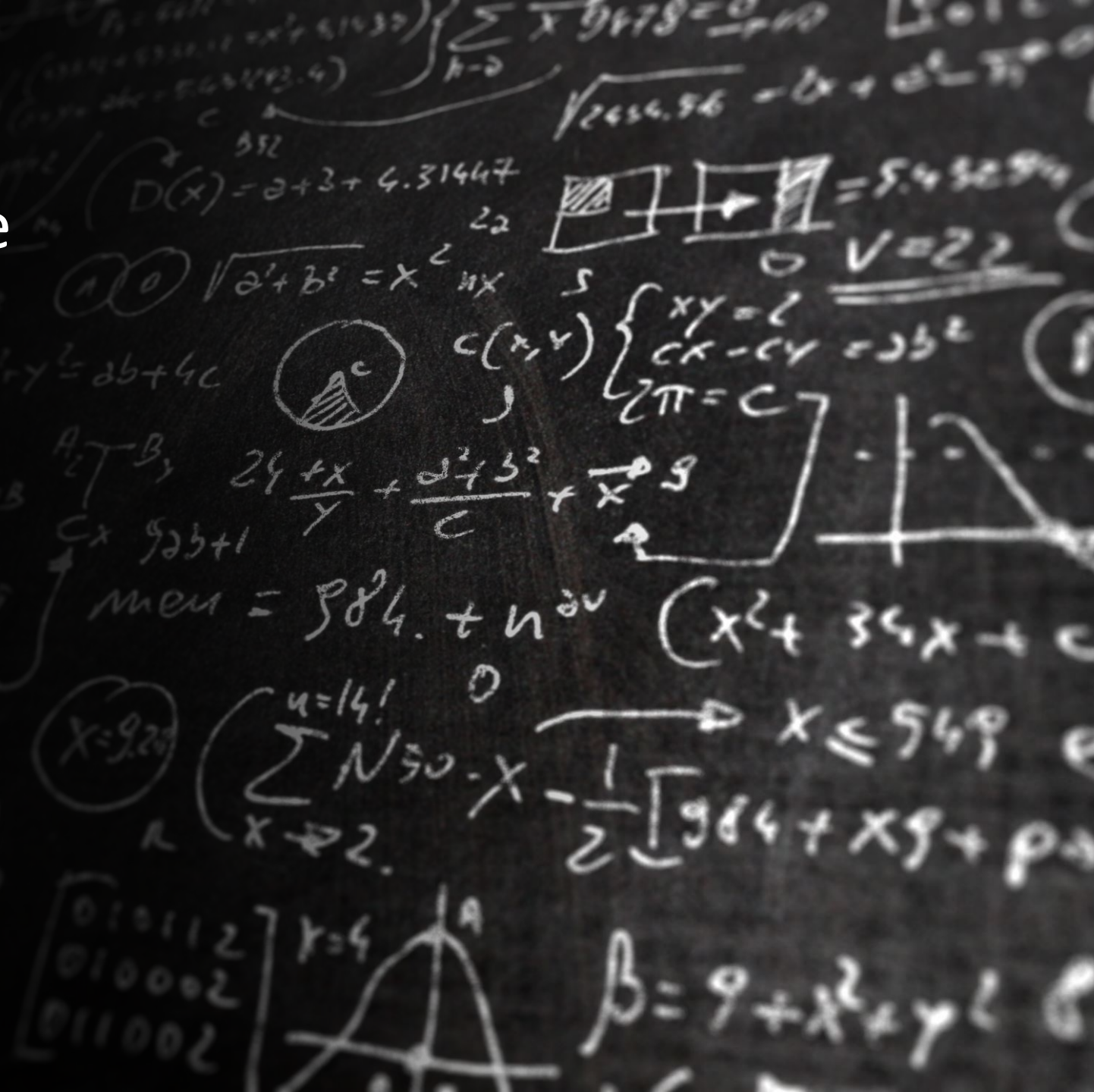
Due Friday May 12th



Demonstrate your use of math in the final drawing



Pythagoras
Slope of a line
Equation of a line
Sin, Cos, Tan
~~Pick's Formula~~
1-d/D
Ratio, fraction percentage
Pi r2
Distance
Mid-point
Shapes / Area



7. Of the 480 employees in a company:

- 254 employees earn an annual salary of less than $50 000
- 2 employees earn an annual salary of $50 000
- 224 employees earn an annual salary of more than $50 000

What percentile rank is associated with an annual salary of $50 000?

11. BARS OF SOAP

Three scales are set up on a table. Bars of soap are placed on each scale. The bars of soap are in the shape of either a cylinder or a prism.

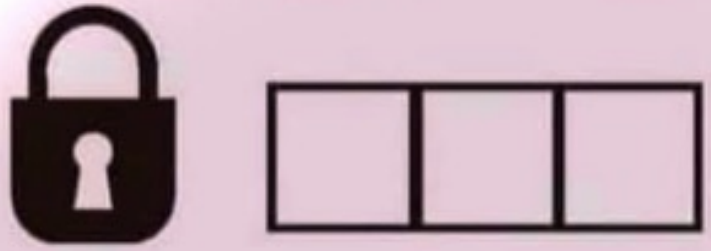
All bars of soap with the same shape have the same mass.

The table below provides information on the bars of soap placed on each scale.

	Number of bars of soap in the shape of a cylinder	Number of bars of soap in the shape of a prism	Total mass of the bars of soap (g)
Scale 1	8	5	3 680
Scale 2	5	4	2 580
Scale 3	2	7	?

What is the total mass of the bars of soap placed on scale 3?

Crack The Password?



A numeric lock has a 3 digit key

HINT

6	8	2

One number is correct and well placed

6	1	4

One number is correct but wrongly placed

2	0	6

Two number are correct but wrongly placed

7	3	8

Nothing is correct

7	8	0

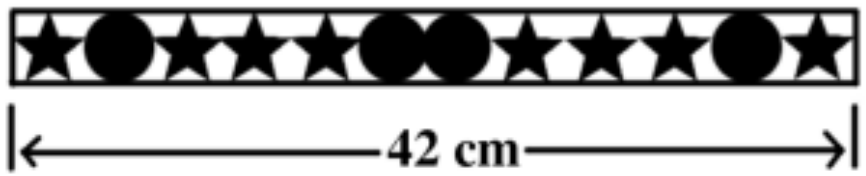
One number is correct but wrongly placed

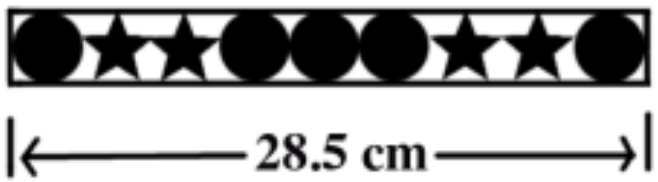
5. Are the following lines **perpendicular or not**?
   Explain your answer.

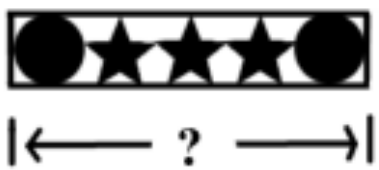
Line 1: $\boldsymbol{y = 4x + 5}$ Line 2: $\boldsymbol{y = -0.25x + 8}$

4. Determine the length of the smallest segment.

- What does 'x' represent in this problem? _____
- What does 'y' represent in this problem? _____







3. Thomas gets a job selling **pizza** and **hot dogs** at local soccer games. He keeps a record of his sales in a table.

	Pizza	**Hot dogs**	**Sales ($)**
Game 1	72	50	237
Game 2	35	40	138.75
Game 3	90	68	?

- **What does 'x' represent in this problem? _____**
- **What does 'y' represent in this problem? _____**

d) How much does a slice of pizza cost?
e) How much does he earn for a hot dog?
f) How much money did Thomas earn during game 3?

6. Are the following lines **perpendicular or not**?
   Explain your answer.

Line 1: $y = \frac{3}{2}x + 1$ Line 2: $y = \frac{2}{3}x - 1$

3. With a $50 bill, you can buy 14 cookies and get $28.30 in change.

a) What does 'x' represent? _____

b) How much does a cookie cost?