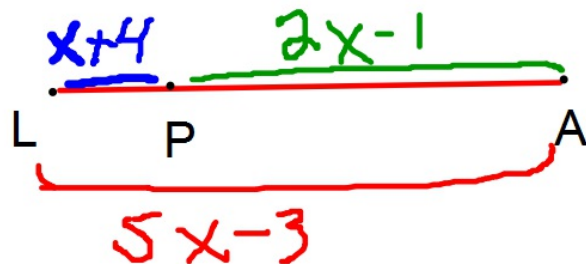


Good afternoon: warm up in notebooks

Suppose P is between L and A , $\overline{LP} = x+4$ and $\overline{PA} = 2x-1$, and $\overline{LA} = 5x-3$.

Find the length of \overline{LA} .



$$\overline{LA} = \overline{LP} + \overline{PA}$$
$$5x-3 = x+4 + 2x-1$$

$$5x-3 = 3x+3$$
$$\underline{-3x} \quad \underline{-3x}$$

$$2x-3 = 3$$
$$\underline{+3} \quad \underline{+3}$$

$$\underline{2x = 6} \quad \rightarrow \quad x = 3$$

Will need
a compass
again today :)

$$5(3)-3$$

(12)

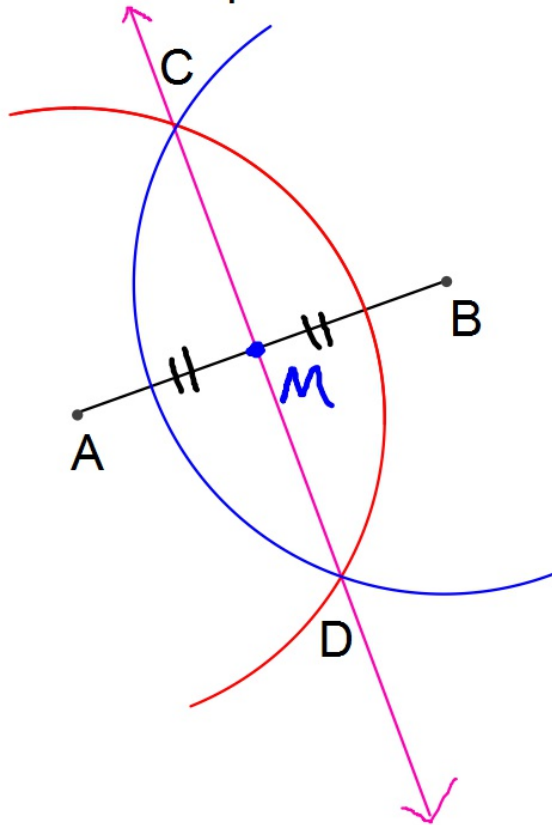
Reminders:

* tutoring today 4-5p

* next assessment is Tuesday 9/5

* retakes available in any DS except Weds (have agendamate out during warmup and I can write you a pass)

Looking back at our Perpendicular Bisector Construction:

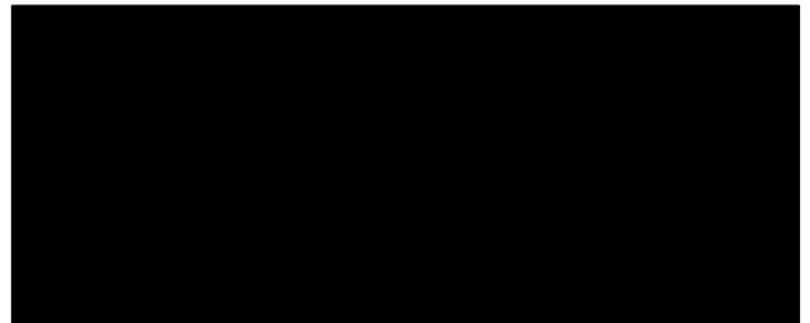


M is the midpoint of \overline{AB}

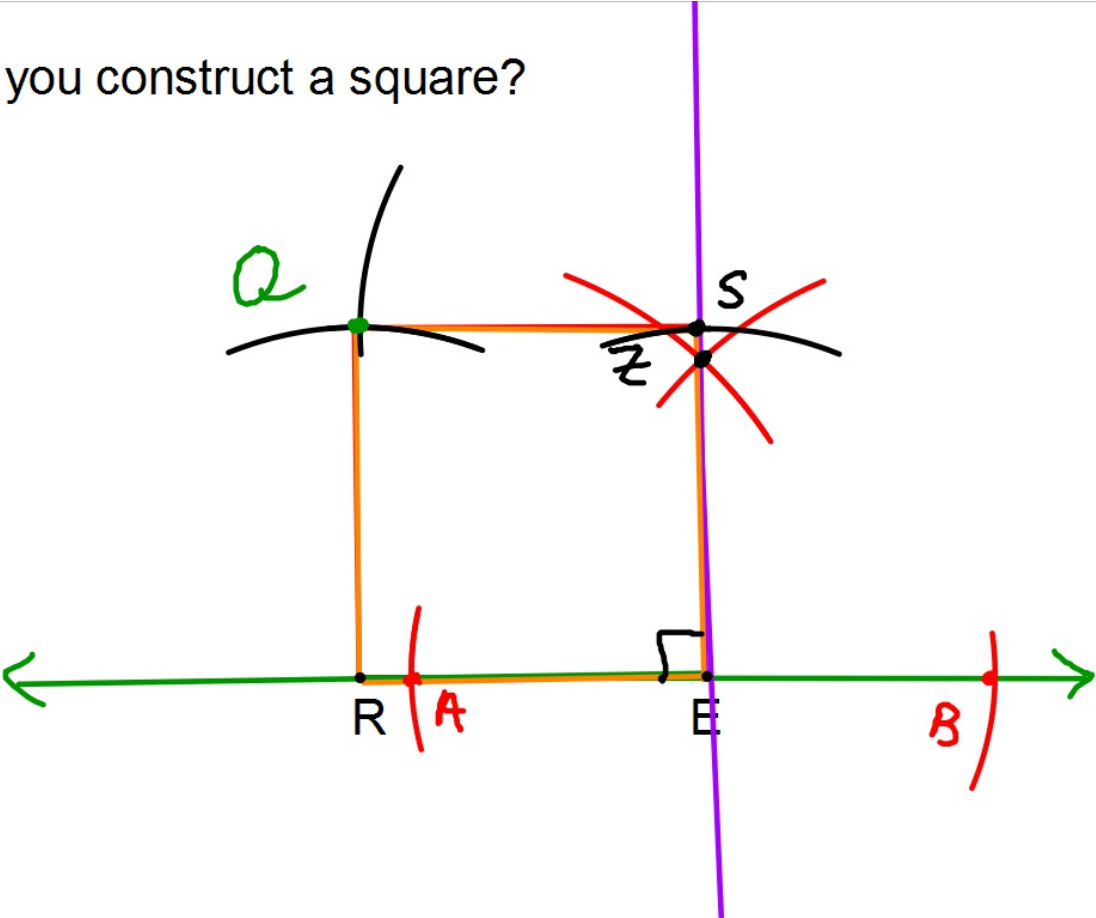
$\overleftrightarrow{CD} \perp \overline{AB}$

identical
≅
"Congruent"

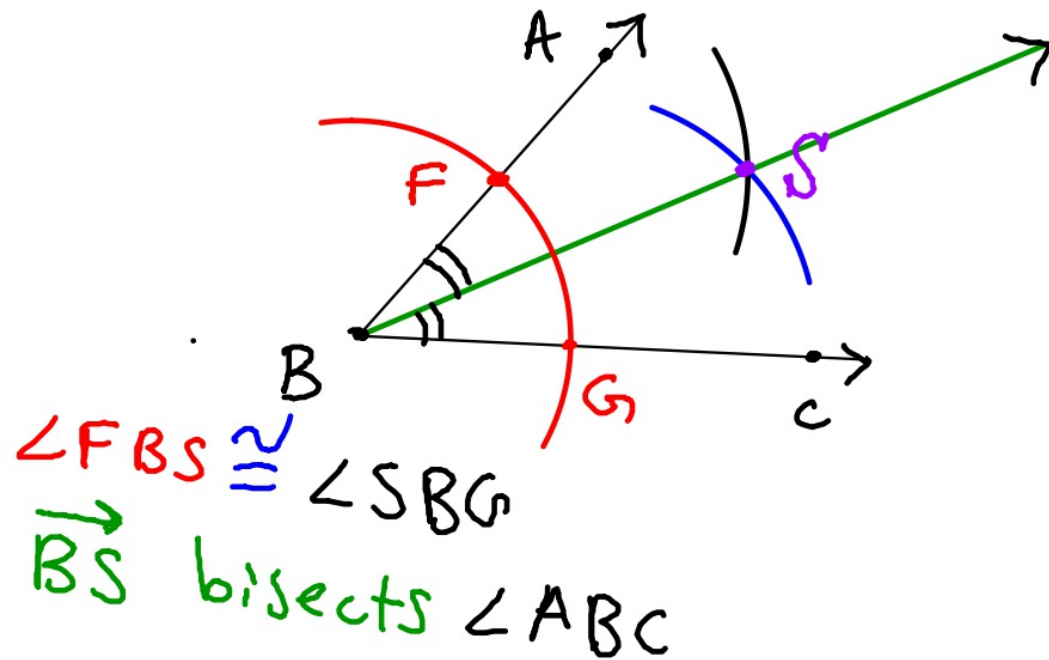
M bisects \overline{AB} so that $\overline{AM} \cong \overline{BM}$



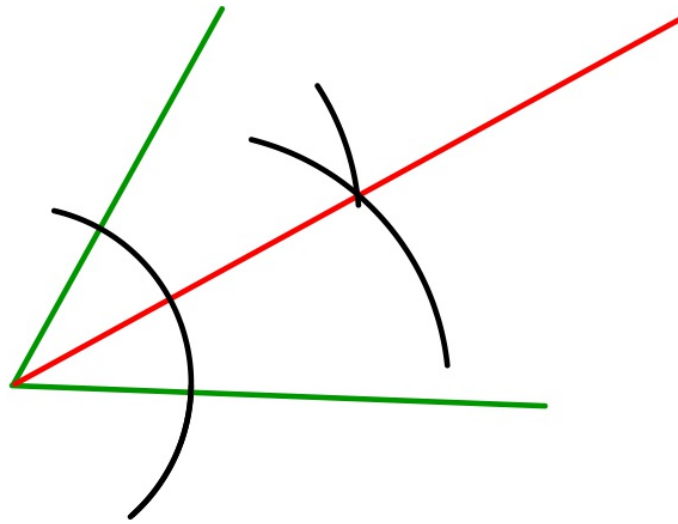
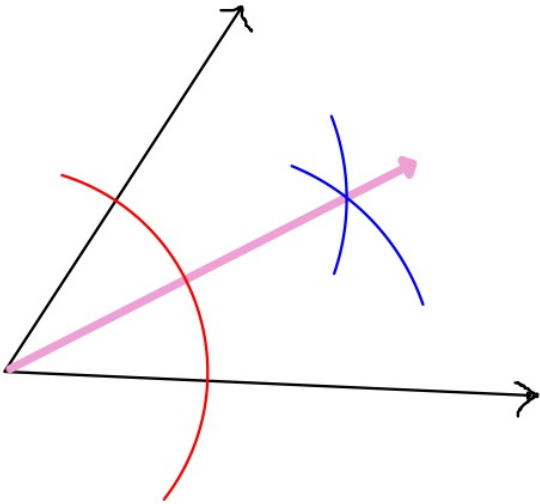
How do you construct a square?



Constructing the Angle Bisector (will also be on a future assessment!)

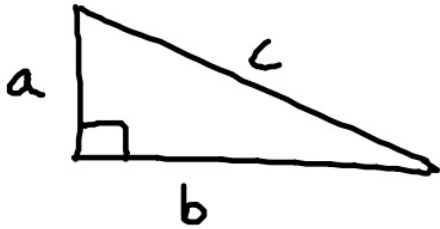


Try your own angle bisector!



Put away compasses please :)

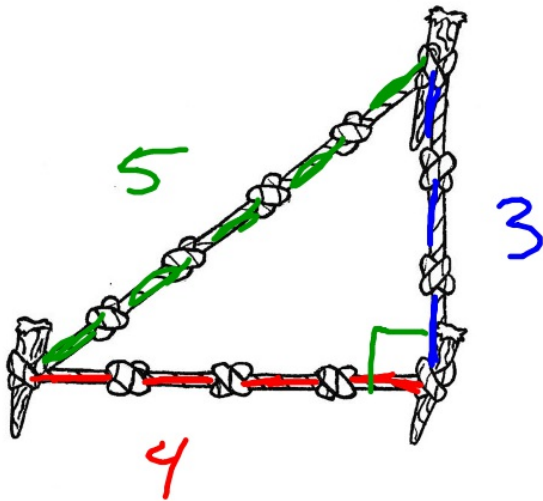
The Pythagorean Theorem



$$a^2 + b^2 = c^2$$

"The square of the hypotenuse is equal to the sum of the squares of the legs."

Side opposite 90°



$$3^2 + 4^2 = 5^2$$

$$9 + 16$$

$$25$$



$$25$$

Demo: <https://www.youtube.com/watch?v=CAkMUdeB06o>

Proof: <https://www.youtube.com/watch?v=pVo6szYE13Y>

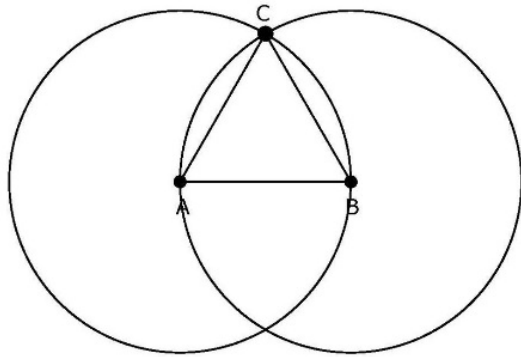
Q.E.D. "*Quod Erat Demonstrandum*"
what was to be demonstrated





Q.E.D.

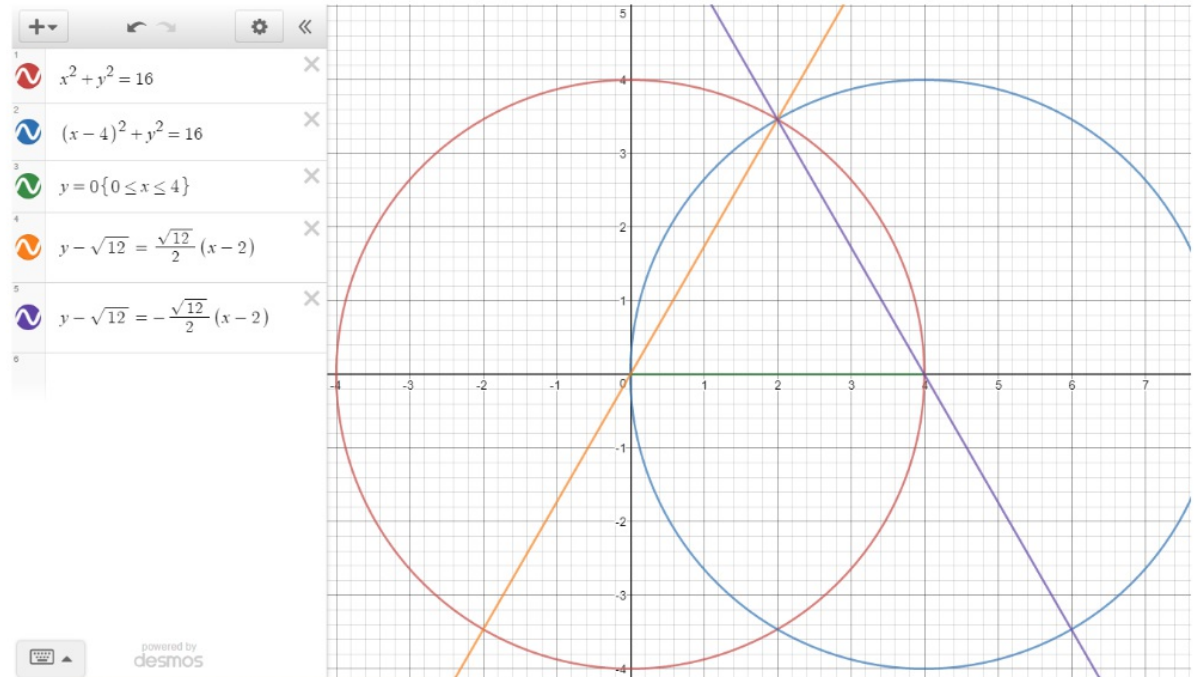
Euclidean Geometry



300 BCE



Cartesian/Coordinate Geometry

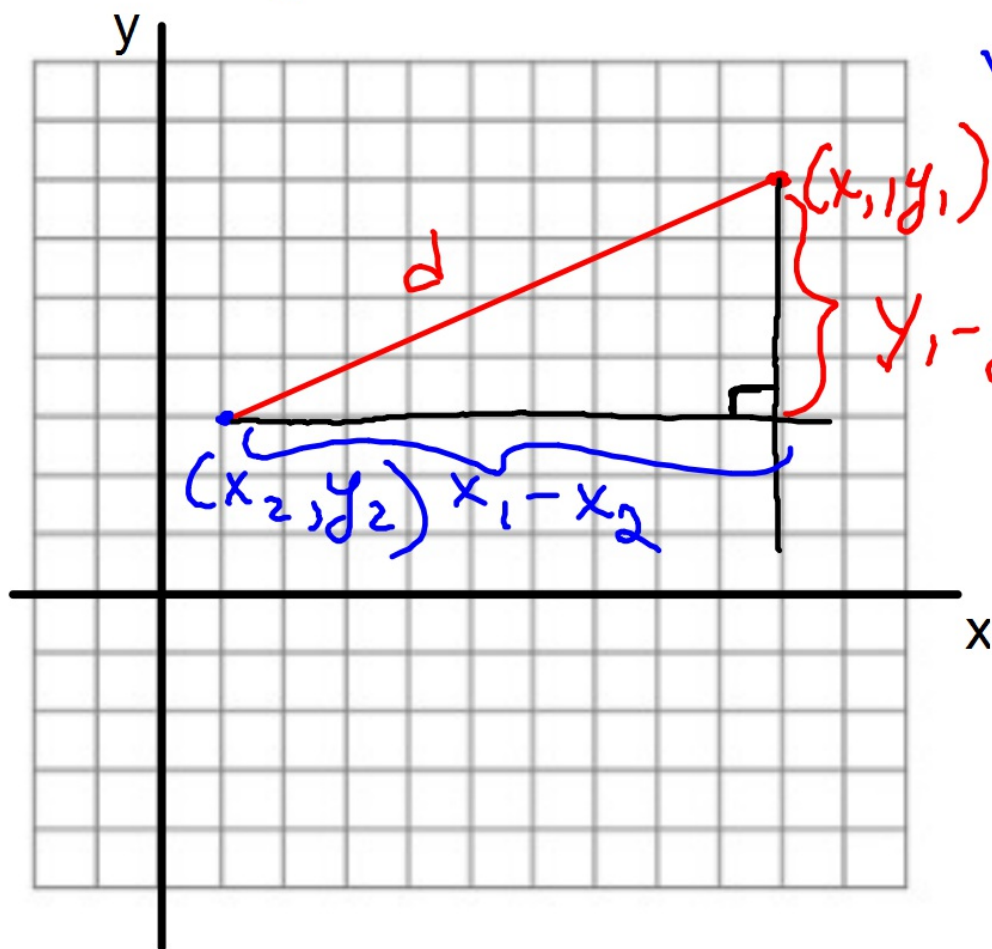


1600s CE

"Cogito ergo sum"
I think, therefore I am.



Calculating Distance on the Cartesian Plane



$$\sqrt{d^2} = \sqrt{(y_1 - y_2)^2 + (x_1 - x_2)^2}$$

$$d = \sqrt{(y_1 - y_2)^2 + (x_1 - x_2)^2}$$

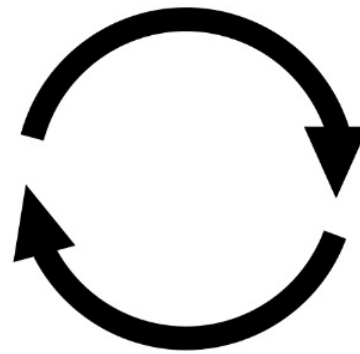
Distance
formula

$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$



$$d^2 = (x_2 - x_1)^2 + (y_2 - y_1)^2$$

Distance Formula



$$c^2 = a^2 + b^2$$

Pythagorean
Theorem



$$d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Find the exact distance between (5,3) and (2,8).

$$d = \sqrt{(5-2)^2 + (3-8)^2}$$

$$d = \sqrt{(3)^2 + (-5)^2}$$

$$d = \sqrt{9 + 25} = \sqrt{34} \approx 5.831$$

Find the exact distance between (-6,4) and (1,-7).

$$d = \sqrt{(-6-1)^2 + (4-(-7))^2}$$

$$d = \sqrt{(-7)^2 + (4+7)^2} \Rightarrow \sqrt{49 + (11)^2} = \sqrt{49 + 121}$$

$$= \sqrt{170} \approx 13.038$$

Homework

p. 59 #1,2, 8-12

Next assessment is Tuesday