1106 DIS 208 Week 2 (#1) 1/29/2020

Discussion Outline

- Upcoming Assessment
- Form Groups Activity
- Recitation Worksheet

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Upcoming Assessment

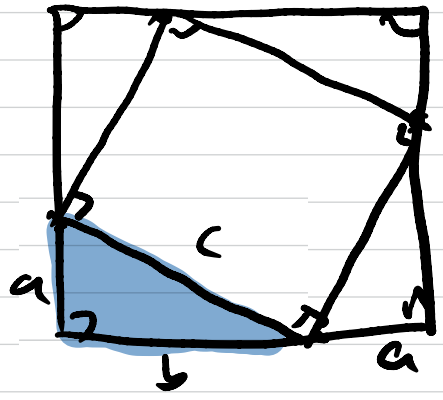
- Reading Quiz 4 (Tonight, 1/29)
- Homework 2 (Monday, 2/3) - partial solutions uploaded
- Reading Quiz 5 (Monday, 2/3) - not yet uploaded
- Prelim 1 (6 weeks away, 10/3)

- Can always ask questions on Piazza

- Other resources: Stack Exchange.

Extra Exercise:

Prove Pythagoras' Thm.



Area of square method 1:

$(a+b)^2$

Area of square method 2:

4 x area triangle + area of central square

$4 \cdot \frac{1}{2}ab + c^2 = 2ab + c^2$.

$(a+b)^2 = 2ab + c^2$

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

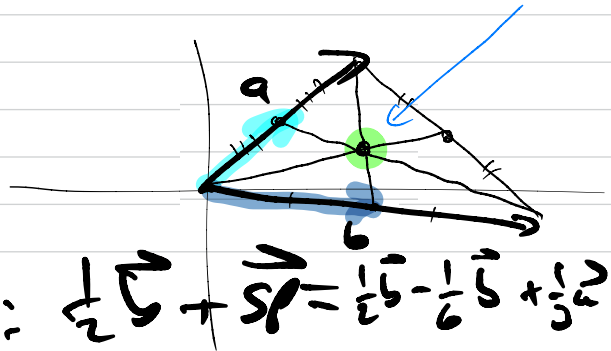
BONUS CONTENT

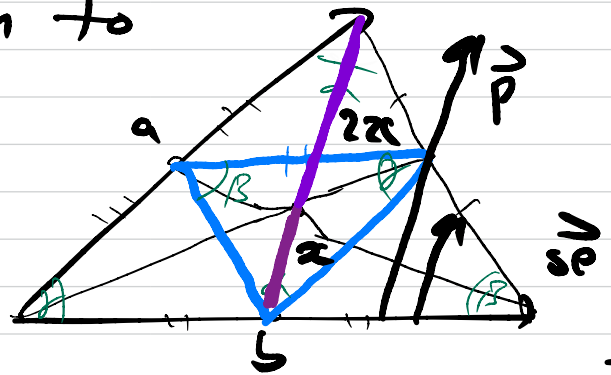
Extra Question:

In the given triangle, thinking of the sides as vectors, what is the formula for the vector going from the origin to the centroid? (not on exam)

$\vec{SP} = \frac{1}{3}(\vec{P})$

$= \frac{1}{3}\left(\vec{a} - \frac{\vec{b}}{2}\right)$





Sol: $\frac{1}{2}\vec{b} + \vec{SP} = \frac{1}{2}\vec{b} - \frac{1}{6}\vec{b} + \frac{1}{3}\vec{a}$. $\frac{\vec{b}}{2} + \vec{P} = \vec{a}$ $\vec{P} = \vec{a} - \frac{\vec{b}}{2}$

Last Time: Vectors, vector fields

Today:
- Population models (one variable)
  - $X' = rX$ (p29-30, Modeling Life)
  - $X' = bX - cX^2$ (p30-31, M.L.)
    - a.k.a logistic eqn
    - a.k.a population model with crowding
  - Sigmoid functions
  - (Extra) Newton's Law of Cooling.

Room Diagram