Fix a
△
as a
reference

put masses
at vertices

(positive integer
masses)

2:5
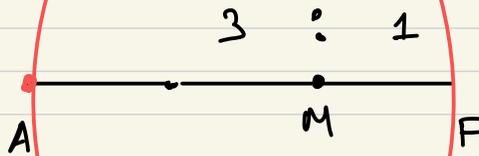
A (2)

$\times b$

3

△E

x

1

B (3)

F (6)

C (3)

(2,3,3) is an address of a point inside
△ABC

$6 \cdot x = 2 \cdot y$ (Archimedes)

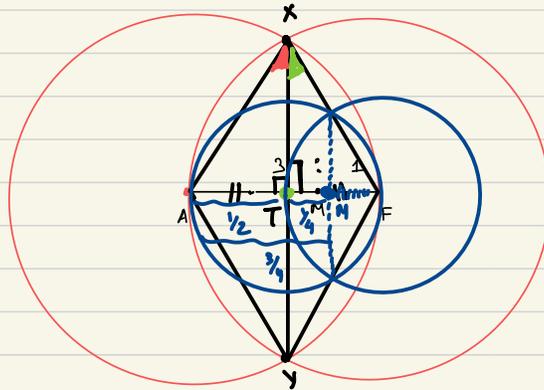$$\frac{x}{y} = \frac{2}{6} = \frac{1}{3}$$

Splitting
problem

3 : 1

A   M   F

compass + pencil

straight-edge.

Mohr Maschoroni
Theorem

S-S-S

T/p — Try to
~~H/W~~ prove
C-C-S
using
S-A-S
rule

Claim
↓
XY bisects
AF

$\triangle XAY \cong \triangle XFY$

S-S-S

$\begin{cases} AX = FX \\ AY = FY \\ XY = XY \end{cases}$

$\triangle XAT \cong \triangle XTF$

S-A-S
$AX = FX$
$XT = XT$
$\angle RED = \angle GREEN$

HOMEWORK

① Use compass + straight edge to

⊙ | split a segment into 2:5 ratio |

② Start with a $\triangle ABC$ (any triangle)

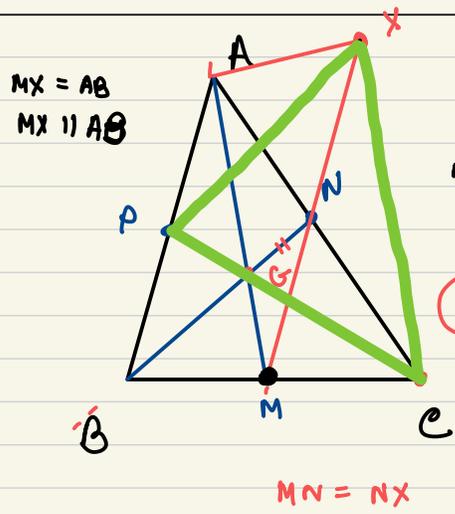find points $(2, 3, 4)$
$(4, 4, 5)$ → compare positions
of those two.
$(4, 6, 8)$
$(1, 1, 7)$

Claim AXCM
        is ‖gm

        AX = CM ⎤
        AX ‖ CM ⎦

AX = BM = CM

AXMB
is ‖ᵐ

Midpoint
Theorem

Homework

MX = AB
MX ‖ AB

MN = ½ AB
MN ‖ AB

AM = CX

CP = CA

BG = GX
PG = CG

MN = NX

Goal   Produce a new
       triangle using
       medians of the old
       triangle.

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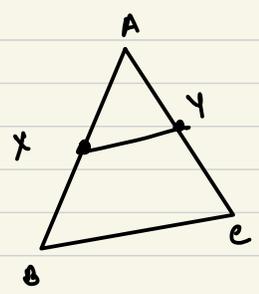
xy ‖ BC

xy = ½ BC

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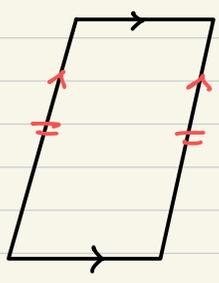
if you have a quad

one pair of opposite sides
are equal and parallel

then show that the
quad is ‖gm