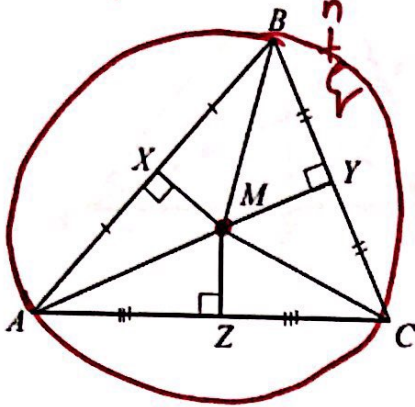


Peanut Butter Chocolate And Bananas in my cereal

GUIDED NOTES: Centers of Triangles

Circumcenter



Created by:

Important Facts:

The circumcenter is equidistant from each vertex of the triangle.

* perpendicular bisector

Ex1

Given

C is a circumcenter.

AC = 12

MP = 14

TM = 10

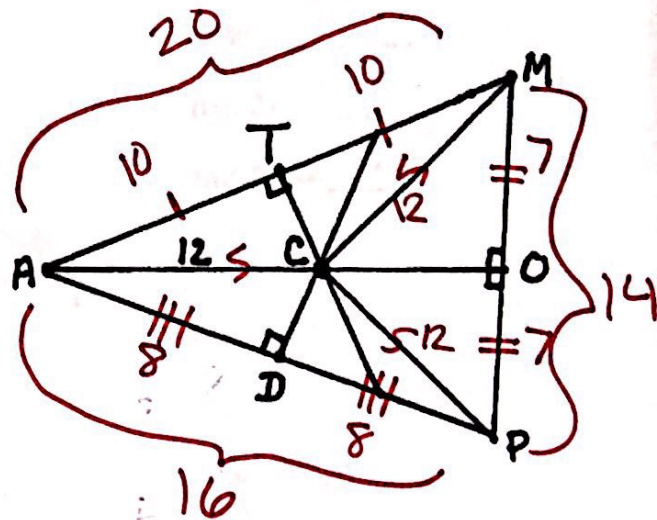
AD = 8

Find

AT = 10

CM = 12

DP = 8



Ex 2)

In the diagram, the perpendicular bisectors (shown with dashed segments) of $\triangle ABC$ meet at point G—the circumcenter. and are shown dashed. Find the indicated measure.

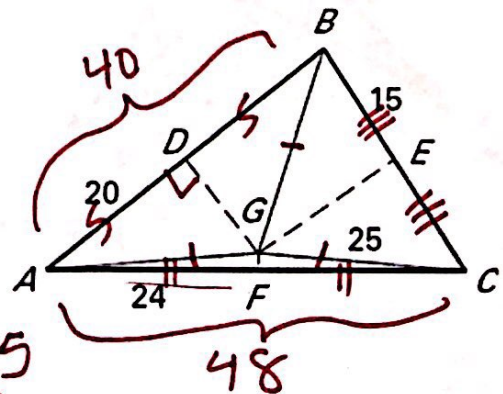
AG = 25 BD = 20

CF = 24 AB = 40

CE = 15 AC = 48

$m\angle ADG =$ 90°

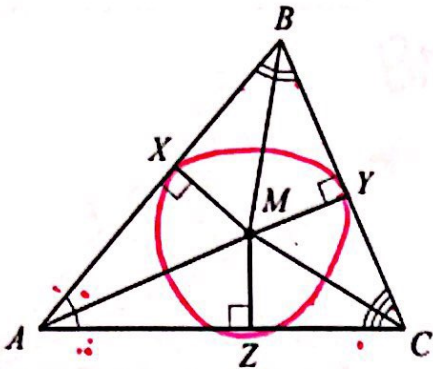
IF $BG = (2x - 15)$, find x.



$2x - 15 = 25$
 $2x = 40$
 $x = 20$

Incenter

Created by:



Important Facts:
 The incenter is equidistant from each side of the triangle.
 * angle bisector

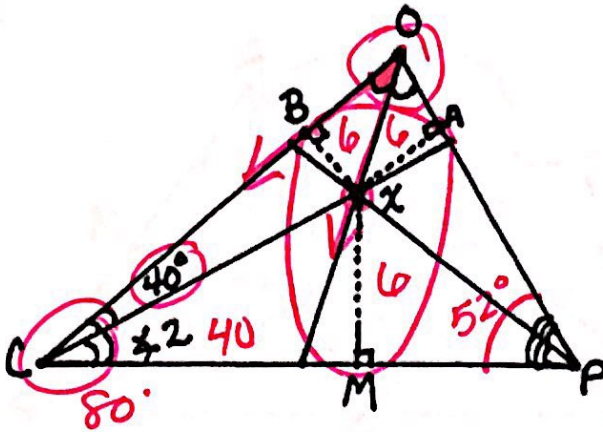
Ex 1)

X is an incenter.

$BX = 6$

$m\angle CPO = 52^\circ$

$\Delta = 180^\circ$
 $180 - 80 - 52$
 $\frac{48}{2}$



Find:

$XM = \underline{6}$

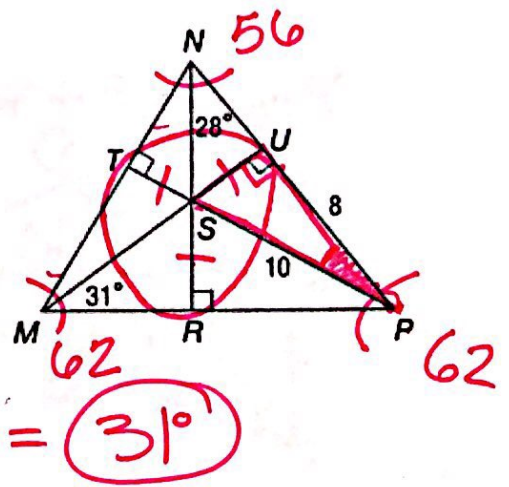
$m\angle 2 = \underline{40^\circ}$

$m\angle BOX = \underline{24^\circ}$

Ex 2)

a) Find ST if S is the incenter of ΔMNP .

$8^2 + (SU)^2 = 10^2$
 $64 + (SU)^2 = 100$
 $\sqrt{(SU)^2} = \sqrt{36}$
 $SU = 6$ $ST = 6$

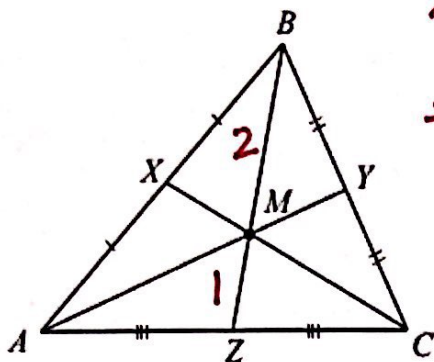


b) Find $m\angle SPU$ if S is the incenter of ΔMNP .

$180 - 62 - 56 = \frac{62}{2} = \underline{31^\circ}$

Gentroid

Created by:



$Bm = \frac{2}{3} BZ$
 * long part = $\frac{2}{3}$
 short = $\frac{1}{3}$
 of whole length

Important Facts:

A centroid is created by a vertex connected to the median of the opposite side.

* median

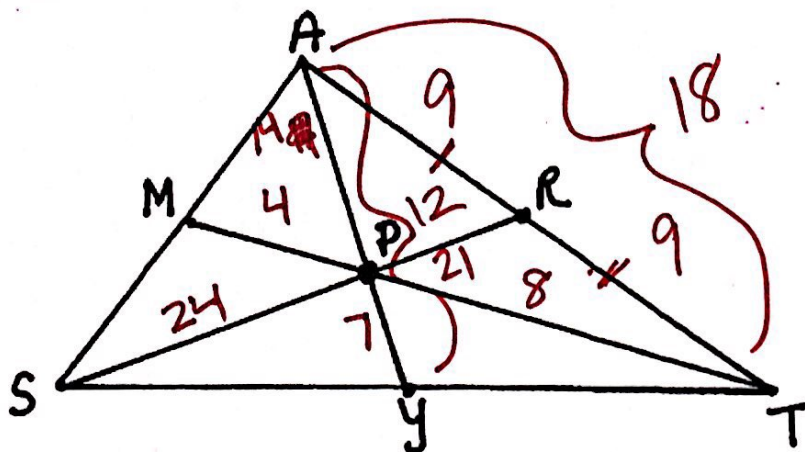
Ex 1) P is a centroid.

PR = 12

PT = 8

AR = 9

AY = 21



Find:

SP = $\frac{24}{12}$

TM = $\frac{12}{18}$

AT = $\frac{18}{9}$

PY = $\frac{7}{21}$

Ex 2) Solve for x, y, and z if N is the centroid.

$3y + 5 = 10(2)$

$3y + 5 = 20$

$3y = 15$

$y = 5$

$2(12) = 2x$

$x = 12$

$\frac{24}{2} = \frac{6z(2)}{2}$

$12 = 6z$

$z = 2$

