

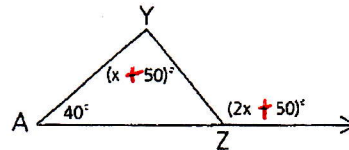
HOMEWORK

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Ext 4
Theorem

Midline
Theorem

- 9 Diagram as marked
 Find: $m\angle YZA$



$$2x + 50 = 40 + x + 50$$

$$2x + 50 = x + 90$$

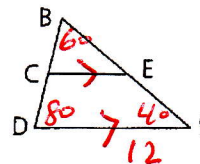
$$-x - 50 \quad -x - 50$$

$$x = 40$$

$$m\angle YZA = 2(40) + 50$$

$$= 80 + 50 = 130$$

- 10 Given: C is the midpt. of $\overline{BD}$
 E is the midpt. of $\overline{BF}$
 $DF = 12$
 $m\angle D = 80$, $m\angle B = 60$
 Find: CE, $m\angle BCE$, $m\angle BEC$

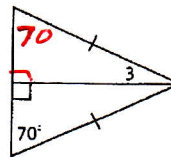


$$m\angle BCE = 80$$

$$m\angle BEC = 40$$

$$CE = 6$$

- 11 Find $m\angle 3$ of
 the diagram as marked



$$m\angle 3 = 20$$

- 12 If the measure of an exterior angle of a regular polygon is 15, how
 many sides does the polygon have?

$$\frac{360}{15} = 24$$

- 13 If a polygon contains 33 sides, find:
 a the sum of the measures of the angles of the polygon.
 b the sum of the measures of the exterior angles, one per vertex,
 of the polygon.

$$S_i = 180(n-2) = 180(33-2)$$

$$= 180(31)$$

$$= 5580$$

$$360$$

- 14 The sum of the measures of the angles of a polygon is 1620. Find
 the number of sides of the polygon.

$$1620 = \frac{180(n-2)}{180}$$

$$1620 = 180n - 360$$

$$9 = n - 2$$

$$11 = n$$

- 15 Find the number of diagonals in a pentadecagon.

$$d = \frac{n(n-3)}{2}$$

$$d = \frac{15(15-3)}{2}$$

$$d = 180$$

- 16 The measure of each exterior angle of an equiangular polygon is
 twice that of each interior angle. What is the name of the poly-
 gon?

$$\begin{array}{c|c} \text{int} & \text{ext} \\ \hline x & 2x \end{array}$$

$$x + 2x = 180$$

$$3x = 180$$

$$x = 60$$

$$\text{Ext} + \text{Int} = 180$$

$$\frac{360}{120} = 3$$

Equilateral
 triangle

24. The measure of an angle of an equiangular polygon exceeds four times the measure of an
 exterior angle by 30. What is the name of the polygon?

$$\begin{array}{c|c} \text{int} & \text{ext} \\ \hline 4x + 30 & x \end{array}$$

$$4x + 30 + x = 180$$

$$5x + 30 = 180$$

$$5x = 150$$

$$x = 30$$

$$\frac{360}{30} = 12$$

6) Quadrilateral = 360

$40 + 70 + 130 = 240$

$360 - 240 = 120$

7) $1x + 2x + 3x = 180$

$6x = 180$

$x = 30$

$x = 30$

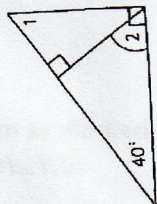
$2x = 60$

$3x = 90$

Half of the largest angle = 45°

- 6 The measures of three of the angles of a quadrilateral are respectively 40, 70, and 130. What is the measure of the fourth angle?

- 7 The measures of the angles of a triangle have the ratio of 1:2:3. Find the measure of half of the largest angle.

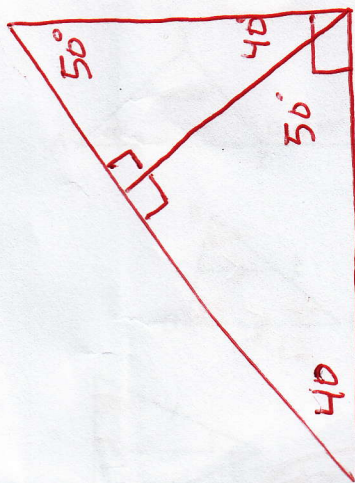


- 8 Diagram as marked

Find: $m\angle 1$

$m\angle 2$

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$m\angle 1 = 50^\circ$

$m\angle 2 = 50^\circ$