

SHOW FORMULAS AND SUBSTITUTIONS!!!

1. Find the sum of the measures of the angles of a convex 25-gon.

$$180(n-2) = 180(23)$$

$$4140^\circ$$

2. Find the number of diagonals of a 30 gon.

$$\frac{n(n-3)}{2} = \frac{30 \cdot 27}{2}$$

405 diagonals

3. Find the sum of the measures of the exterior angles of a 45-gon.

$$360^\circ$$

4. Find the measure of one interior angle of a regular 90-gon.

$$\frac{180(n-2)}{n} = \frac{180 \cdot 88}{90} = 2 \cdot 88$$

$$= 176^\circ$$

5. Find the measure of a central angle of a regular 36-gon.

$$\frac{360}{n} = \frac{360}{36} = 10$$

$$10^\circ$$

6. The sum of the measures of a convex polygon is 17,640°. Find the number of sides of the polygon.

$$180(n-2) = 17640$$

$$n-2 = 98$$

$$n = 100$$

100 SIDES

7. The sum of the measures of the interior angles of a convex polygon is ten times the sum of the measures of its exterior angles, one at each vertex. Find the number of sides of the polygon.

let $x = 180(n-2)$ then $x = 10(360)$

$$180(n-2) = 3600$$

$$n-2 = 20$$

$$n = 22$$

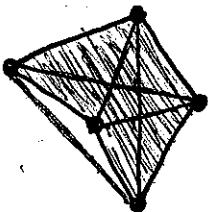
22 SIDES

8. What is the sum of the measures of the exterior angles, one at each vertex, for a polygon if the sum of the measures of the angles of the polygon is 2160°?

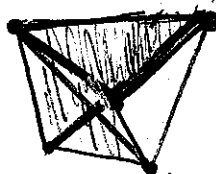
$$360^\circ$$

9. Sketch a pentagon such that:

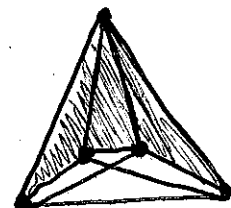
a. Exactly four of its diagonals intersect its interior



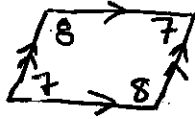
b. Exactly three of its diagonals intersect its interior



c. Exactly two of its diagonals intersect its interior



10. Two consecutive angles of a parallelogram are in the ratio 7:8. What is the measure of each angle?



$$7 + 7 + 8 + 8 = 30 \quad \frac{360}{30} = 12$$

or

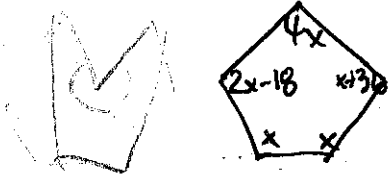
$$7x + 8x = 180 \quad \begin{matrix} 7 \times 12 \\ 8 \times 12 \end{matrix} = \begin{matrix} 84 \\ 96 \end{matrix} \quad \boxed{84^\circ \text{ \& } 96^\circ}$$

11. The angles of a triangle are in the ratio 3:4:5. What is the measure of each angle?

$$3x + 4x + 5x = 180 \quad 3 + 4 + 5 = 12 \quad \begin{matrix} 3 \times 15 = 45 \\ 4 \times 15 = 60 \\ 5 \times 15 = 75 \end{matrix} \quad \boxed{45^\circ, 60^\circ, 75^\circ}$$

$$\frac{180}{12} = 15$$

12. Two of the angles of a pentagon are equal. The third angle is 4 four times one of the equal angles. The fourth angle is 18 less than twice the equal angles. The fifth angle is thirty six more than one of the equal angles. Find the measures of the five angles of the pentagon.



$$x + x + 2x - 18 + 4x + x + 36 = 540$$

$$9x + 18 = 540$$

$$9x = 522$$

$$x = 58$$

$$\boxed{58^\circ, 58^\circ, 232^\circ, 98^\circ, 94^\circ}$$

13. The sum of the measures of the interior angles of a convex polygon is $45,000^\circ$. Find the number of sides of the polygon.

$$180(n-2) = 45,000$$

$$n-2 = 250$$

$$n = 252$$

$$\boxed{252 \text{ SIDES}}$$

EXTRA PRACTICE IN TEXTBOOK:

§ 5.1 pg. 259 #s 1-10 ALL - DONE IN CLASS

§ 5.2 pg 263 #s 1-11 ALL