

Geometry Review Chapter 7

1) The measure of three of the angles of a quadrilateral are 40° , 70° , and 130° . What is the measure of the 4th angle?

$$120^\circ$$

2) What is the sum of the measures of the exterior angles, one per vertex, of a dodecagon?

$$360^\circ$$

3) If the measure of an exterior angle of a regular polygon is 15° , how many sides does the polygon have?

$$n=24$$

4) If a polygon has 33 sides, what is

a) The sum of the measures of the angles of the polygon?

$$5,580^\circ$$

b) The number of diagonals of the polygon?

$$495$$

c) The sum of the measures of the exterior angles, one per vertex, of the polygon?

$$360^\circ$$

5) The sum of the measures of the angles of a polygon is 1620° . How many sides does the polygon have?

$$180(n-2) = 1620$$

$$n=11$$

6) The number of diagonals in a polygon is 65. How many sides does the polygon have?

$$\frac{n(n-3)}{2} = 65$$

$$n^2 - 3n = 130$$

$$n=13$$

$$(n-13)(n+10) = 0$$

7) What is the measure of each angle in a regular octagon?

$$135^\circ$$

8) What is the measure of each exterior angle in a regular dodecagon?

$$30^\circ$$

9) If an interior angle of a regular polygon is 108° , what is the measure of the exterior angle?

$$72^\circ$$

10) If each exterior angle of a regular polygon is 60° , how many sides does the polygon have?

$$n = 6$$

11) If each interior angle of a regular polygon is 140° , how many sides does the polygon have?

$$\frac{180(n-2)}{n} = 140$$

$$n = 9$$

12) An exterior angle of a regular polygon is $\frac{1}{3}$ the measure of an interior angle of the polygon. How many sides does the polygon have? What is the name of this polygon?

$$x + \frac{1}{3}x = 180$$

$$4x = 540$$

$$\frac{360}{45} = 8$$

$$n = 8$$

Octagon

$$\frac{4}{3}x = 180$$

$$x = 135^\circ$$

$$\frac{1}{3}x = 45^\circ$$

13) An exterior angle of a regular polygon is 40% of the measure of an interior angle of the polygon. How many sides does the polygon have? What is the name of this polygon?

$$x + 0.4x = 180$$

$$ext = 51.43^\circ$$

$$n = 7$$

Heptagon

$$1.4x = 180$$

$$\frac{360}{51.43} = 7$$

$$x = 128.57^\circ$$

14) Given: C is the midpoint of \overline{BD}

E is the midpoint of \overline{BF}

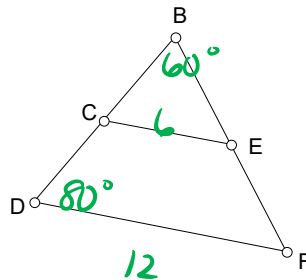
$DF = 12$

$m\angle D = 80^\circ$, $m\angle B = 60^\circ$

Find: a. CE 6

b. $m\angle BCE$ 80°

c. $m\angle BEC$ 40°



15) Always, Sometimes, Never

a. An equiangular triangle is isosceles. **A**

b. The number of diagonals in a polygon is the same as the number of sides. **S**

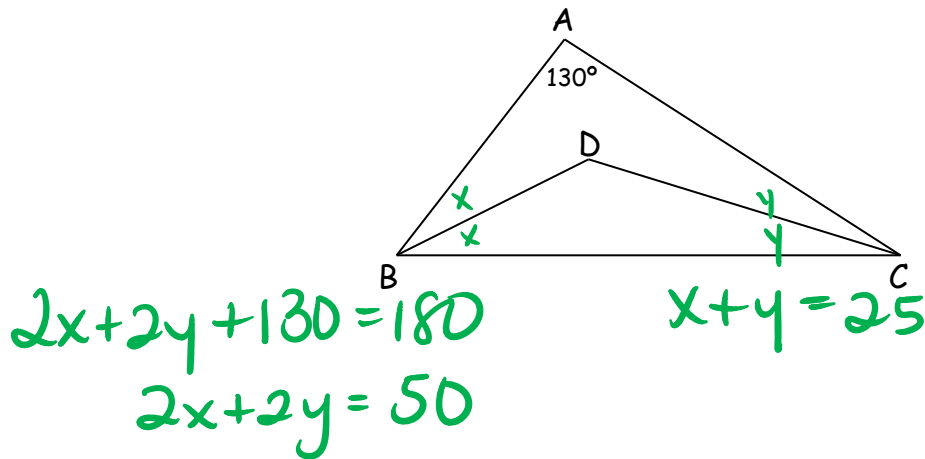
c. An equilateral polygon is regular. **S**

d. An equiangular polygon is regular. **S**

e. The exterior angle of a triangle is larger than any interior angle. **S**

f. If you double the lengths of the sides of a triangle, then you double the measures of all the interior angles. **N**

16) In $\triangle ABC$, $m\angle A = 130^\circ$, and $\angle ABC$ and $\angle ACB$ have been bisected. Find $m\angle D$.

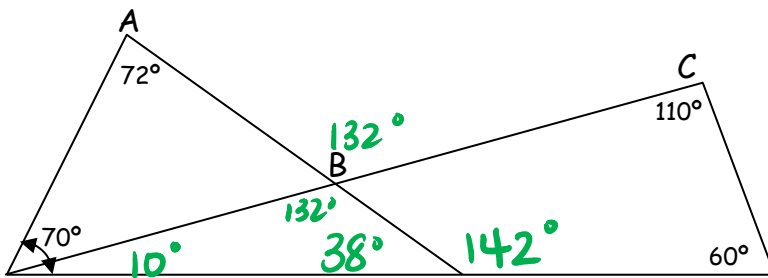


$$m\angle D = 155^\circ$$

17) The sum of five of the six angles of a hexagon is 650° . What is the measure of the sixth angle?

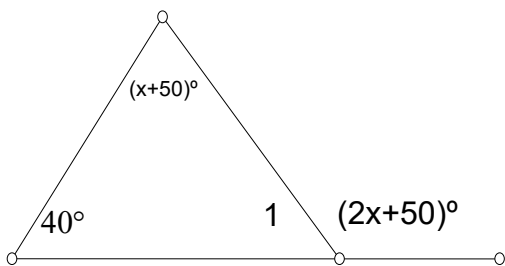
$$70^\circ$$

18) Find $m\angle ABC$.



$$m\angle ABC = 132^\circ$$

19) Find the measure of angle 1.



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

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

$$x = 40^\circ$$

$$m\angle 1 = 50^\circ$$