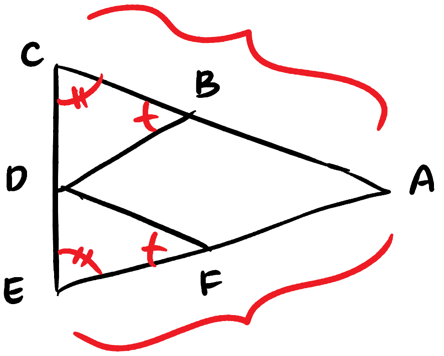
Review

p. 320: 3, 6, 12-15, 18, 20, 21, 24, 26



#3 Given: $\overline{AC} \cong \overline{AE}$

$\angle CBD \cong \angle EFD$

Prove: $\angle BDC \cong \angle FDE$

1. $\overline{AC} \cong \overline{AE}$	1. Given
2. $\angle CBD \cong \angle EFD$	2. Given
3. $\angle C \cong \angle E$	3. If △ → △
4. $\angle BDC \cong \angle FDE$	4. No Choice Thm

#6 The measures of the angles of a quadrilateral are 40, 70, 130, find the measure of the 4th

$360 - 40 - 70 - 130 = \boxed{120^\circ}$

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

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

$\boxed{n = 24}$

 # 13 If a polygon has 33 sides, what is

a. The sum of the measures of the angles

$180(33-2)$
$180(31)$
5580

b. The sum of the measures of the exterior $\angle$'s, one per vertex, of the polygon

360°

#14 The Sum of the measures of the angles of a polygon is 1620. Find the number of sides

$1620 = 180(n-2)$

$9 = n-2$

$\boxed{11 = n}$

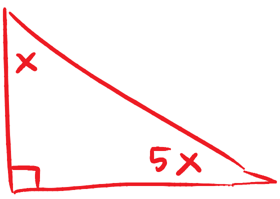
#15 Find the number of diagonals that can be drawn in a pentadecagon

$\text{\# of diag} = \dfrac{15(15-3)}{2}$

$= \dfrac{15(12)}{2}$

$= \boxed{90}$

#18 The measure of one of the angles of a right triangle is five times the measure of another angle of the triangle. What are the possible values of the measure of the second largest angle.



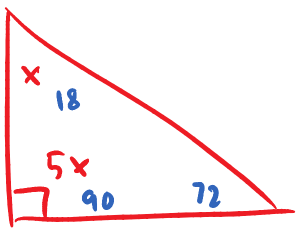
$x + 5x = 90$

$6x = 90$

$x = 15$

$m\angle 2 = 5(15)$

$= 75°$



$5x = 90$

$x = 18$

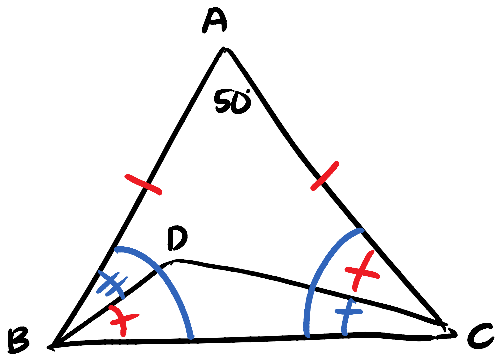
$m\angle 2 = 72°$

#20 Given: $\overline{AB} \cong \overline{AC}$

$\angle DBC \cong \angle DCA$

$m\angle A = 50$

Find: $m\angle BDC$



$\angle ABC + \angle ACB = 130$

$\angle ABC = \angle ACB = 65$

so $m\angle D = 180 \quad 165 = 115°$

#21 Tell whether each statement is true Always, Sometimes, or 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 exterior angle of a triangle is larger in measure than any angle of a triangle **S**

d. One of the base angles of an isosceles triangle has a measure greater than that of one of the exterior angles of the triangle **N**

#24 The measure of an angle of an equiangular polygon exceeds four times the measure of one of the polygon's exterior angle by 30. What is the name of the polygon.

Int $\measuredangle = x$

ext $\measuredangle = 180 - x$

$x = 4(180 - x) + 30$

$x = 720 - 4x + 30$

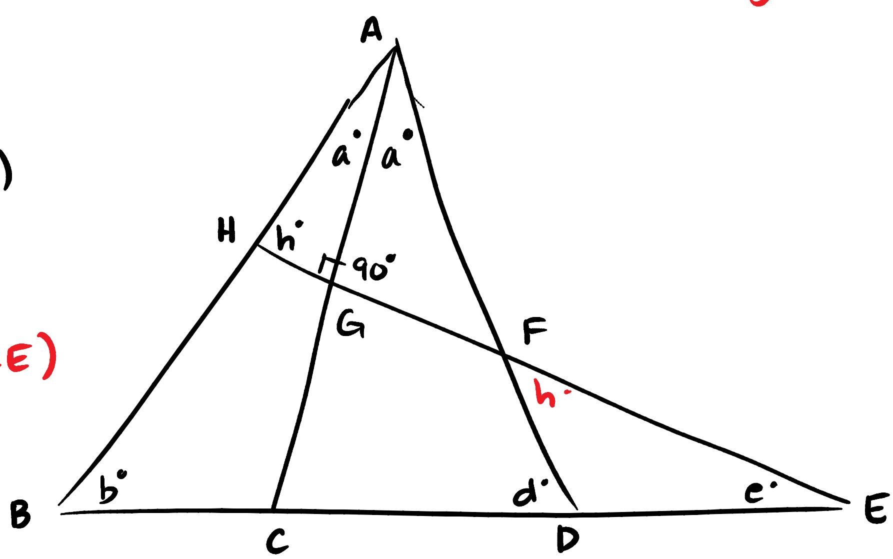
$5x = 750$

$x = 150$

ext $\measuredangle = 30^\circ$

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

$n = 12$ Dodecagon



#26 Show that $h = \frac{1}{2}(b+d)$

$h = b + e$ (ext $\measuredangle$)

$\measuredangle AFG = h$ (by NO CHOICE)

$\measuredangle AFG = \measuredangle EFD$ (by V.A)

$h = \measuredangle EFD$ (transitive)

$d = h + e$ so $e = d - h$ (ext. $\measuredangle$)

$h = b + d - h$ (Substitution)

$\underset{+h}{} \qquad \underset{+h}{}$

$\frac{2h}{2} = \frac{b+d}{2}$

$\boxed{h = \frac{1}{2}(b+d)}$