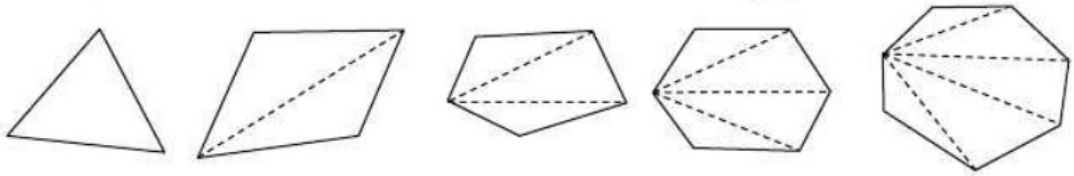
Sec I – Term 2 Name_____ ID: 1

**Notes: T2-27 Translate & Solve** Date_____Period_____

Use the pattern below to fill in the table and answer the following questions.



| Number of Sides | 3 | 4 | 5 | 6 | 7 | … | *n* | … | 15 |
|---|---|---|---|---|---|---|---|---|---|
| Number of Diagonals | 0 | 1 | 2 | 3 | 4 | … | $n-3$ | … | 12 |
| Sum of the Angles | 180° | 360° | 540° | 720° | 900° | … | $180(n-2)$ | … | |

a) Trevin says the rule for finding the sum of the angles in a polygon is to take the number of diagonals, increase it by 1, then times the result by 180°. Translate this into a math expression, use *d* for the diagonals.

$180(d+1)$

b) Sabina says the rule for finding the sum of the angles in a polygon is to find the product of the number of sides and 180°, decreased by 360°

$180n - 360$

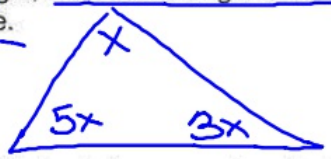
c) Are these expressions the same or different? Explain.

The same, distributed.

d) How would you re-write Trevin's expression using *n*, for the number of sides, instead of *d*, for the number of diagonals?

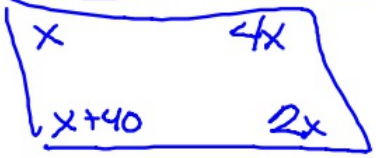
Draw a picture and then find the value of each angle measure.

a) In a triangle, the second angle is 3 times the first angle and the third angle is 5 times the first angle.




$x+3x+5x = 180$

b) In a quadrilateral, the second angle is 4 times the first angle, the third angle is 40 more than the first angle, and the fourth angle is 2 times the first angle.




$x+4x+x+40+2x = 360$

Create a diagram that would help you set up and solve for the unknown values.

a) You have 21 more rap songs than rock song on you MP3 player. You also have 18 less pop songs than rock songs. You have a total of 213 songs, how many of each type of song do you have on your MP3 player?

$x$ (rock) $+ (x+21)$ (rap) $+ (x-18)$ (pop) $= 213$

$3x + 3 = 213$

$\frac{3x}{3} = \frac{210}{3}$

$x = 70$

$x$: rock songs: 70

$x+21$: rap : 91

$x-18$: pop : 52

b) Chase is getting ready for basketball tryouts by practicing his free-throws. He plans to shoot twice as many free-throws on Wednesday as he does on Monday and three times as many on Friday as Monday. His goal is to shoot 150 total free-throws, how many will he have to shoot each day?

M: $x$

W: $2x$

F: $3x$

$x + 2x + 3x = 150$

$6x = 150$

$x = 25$

mon: 25

wed: 50

Fri: 75

c) Bryce went trick-or-treating and got twice as many small piece of candy as he did candy bars and 14 more suckers than candy bars. He has a total of 110 pieces of candy, how much of each kind did he get?

CB: $x$

Sm: $2x$

Suc. $x+14$

$x + 2x + (x+14) = 110$

$4x + 14 = 110$

$4x = 96$

$x = 24$

CB: 24

Sm: 48

S : 38