Name Key Date: _____ Hour: _____

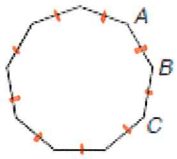
Section 6.1 Practice

1. What is the sum of the interior angle measures of a 32-gon? What is the sum of the exterior angle measures?

Sum int ∠'s = 180(32-2) = 5,400°

Sum Ext = 360°

2. If the polygon shown is regular, what is $m\angle ABC$?



F 140°
G 144°
H 162°
J 180°

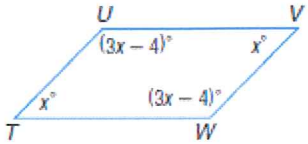
$\frac{180(9-2)}{9}$

n = 9

= 140°

For 3-4, Find x and the measure of each angle.

3.



360 = ∠T + ∠W + ∠V + ∠U

360 = x + 3x − 4 + x + 3x − 4

360 = 8x − 8

368 = 8x

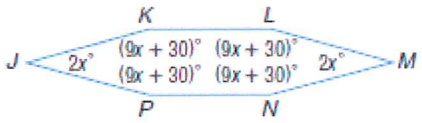
x = 46

∠T = 46° ∠W = 134°

∠V = 46°

∠U = 134°

4.



720 = 2x + 2x + 4(9x + 30)

720 = 40x + 120

600 = 40x

15 = x

∠J = 30° ∠K = 165° ∠P = 165°

∠M = 30° ∠L = 165° ∠N = 165°

5 decagon in which the measures of the interior angles are $x + 5$, $x + 10$, $x + 20$, $x + 30$, $x + 35$, $x + 40$, $x + 60$, $x + 70$, $x + 80$, and $x + 90$

Find x

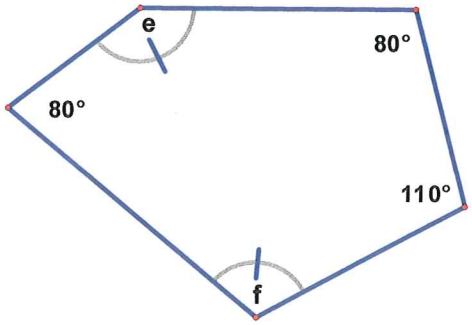
1440 = x + 5 + x + 10 + x + 20 + x + 30 + x + 35 + x + 40 + x + 60 + x + 70 + x + 80 + x + 90

1440 = 10x + 440

1000 = 10x

x = 100

6. Find the measures of ∠e and ∠f. Show all your work.



180(5-2) = 540

540 = 2f + 80 + 80 + 110

270 = 2f

135 = f

135° = e

7. What is the sum of the measures of the exterior angles of a nonagon?

$= 360°$

8. What is the measure of an exterior angle of an equiangular hexagon?

$\frac{360}{6} = 60°$

9. How many sides does a regular polygon have if each exterior angle measures 36°?

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

10. How many sides does a polygon have if the sum of its interior angle measure is 4140°?

$180(n-2) = 4140$ $n = 25$ sides

11. If a regular polygon has 24 sides, what is the measure of each interior and exterior angle?

$\frac{180(24-2)}{24} = 165°$ int $\frac{360}{24} = 15°$ ext

12. What is the measure of an individual angle of a regular 25-gon?

$\frac{180(25-2)}{25}$ $= \frac{4140°}{25} = 165.6$

13. What is the measure of an individual interior angle of a regular dodecagon?

$\frac{180(12-2)}{12} = 150°$

14. The measure of an interior angle of a regular polygon is 140°. Find the number of sides the regular polygon has.

$\frac{180(n-2)}{n} = 140$ $180n - 360 = 140n$ $n = 9$ sides

15. What is the sum of the measures of the exterior angles of a dodecagon?

$= 360°$

16. What is the measure of an exterior angle of an equiangular pentagon?

$\frac{360}{5} = 72°$

same

17. How many sides does a regular polygon have if each exterior angle measures 24°? 22.5°

$\frac{360}{n} = 22.5°$ $n = 16$ sides

18. The measure of an interior angle of a regular polygon is 140°. Find the number of sides the regular polygon has.

$\frac{180(n-2)}{n} = 140°$ $n = 9$ sides

19. The measure of an interior angle of a regular polygon is 108°. Find the number of sides the regular polygon has.

$\frac{180(n-2)}{n} = 108°$ $n = 5$ sides

20. How many sides does a regular polygon have if each exterior angle measures 14.4°?

$\frac{360}{n} = 14.4°$ $n = 25$ sides