Name: 4/19/19 **Geometry Review: Packet #5**

Topic #1: Angles of Polygons

ALL POLYGONS	Sum of Interior Angles: _____; Sum of Exterior Angles: _____
REGULAR POLYGONS	Each Interior Angle: _____; Each Exterior Angle: _____

1. Find the sum of the interior angles of a 25-sided polygon.

2. If the sum of the measures of the interior angles of a polygon is 1,620°, how many sides does it have?

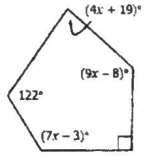
3. What is the measure of each interior angle of a regular 15-gon?

4. What is the measure of each exterior angle of a regular hexagon?

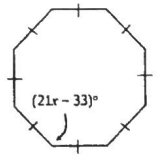
5. If an interior angle of a regular polygon measures 140°, how many sides does it have?

6. If an exterior angle of a regular polygon measures 15°, how many sides does it have?

7. Find the value of x.



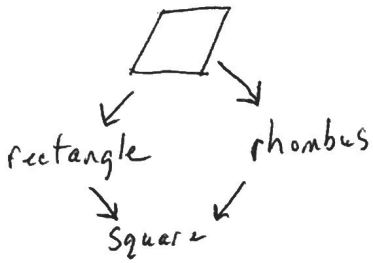
8. Find the value of x.



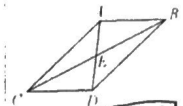
Topic #2: Quadrilaterals

Place an "X" for each property that is true

	Parallelogram	Rectangle	Rhombus	Square
Opposite sides are parallel.	X	X	X	X
Opposite sides are congruent.	X	X	X	X
Diagonals bisect each other.	X	X	X	X
Opposite angles are congruent.	X	X	X	X
Consecutive angles are supplementary.	X	X	X	X
Diagonals are congruent.		X		X
Diagonals are perpendicular.			X	X
Diagonals bisect opposite angles.			X	X



Use parallelogram *ABCD* for 9 and 10.



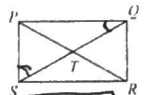
9. If $CE = 6x - 1$ and $EB = 2x + 11$, find CB.

$6x - 1 = 2x + 11$
$4x = 12$
$x = 3$
$6(3) - 1 + 2(3) + 11$
$CB = 34$

10. If $m\angle ACD = (7x - 12)°$ and $m\angle BDC = (10x + 5)°$, find x.

$7x - 12 + 10x + 5 = 180$
$17x - 7 = 180$
$17x = 187$
$x = 11$

Use rectangle *PQRS* for 11 and 12.



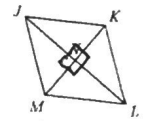
11. If $PR = 3x + 5$ and $SQ = 5x - 9$, find TR.

$3x + 5 = 5x - 9$
$14 = 2x$
$7 = x$
$3(7) + 5 = \frac{26}{2} = 13$
$TR = 13$

12. If $m\angle PSQ = (6x - 13)°$ and $m\angle PQS = (x + 5)°$, find $m\angle PQS$.

$6x - 13 + x + 5 = 90$
$7x - 8 = 90$
$7x = 98$
$x = 14$
$14 + 5 = 19$

Use rhombus *JKLM* for 13 and 14.



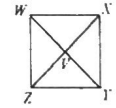
13. If $MK = 7$ and $KL = 15$, find ML.

$7^2 + x^2 = 15^2$
$49 + x^2 = 225$
$x^2 = 176$
$x = 13.3$

14. If $m\angle JMK = (8x - 13)°$ and $m\angle LMK = (4x + 19)°$, find x.

$8x - 13 = 4x + 19$
$4x = 32$
$x = 8$

Use square *WXYZ* for 15 and 16.



15. If $ZY = 20$, find WY.

$x^2 + x^2 = 20^2$
$2x^2 = 400$
$x^2 = 200$
$x = 14.1$

16. If $m\angle WYX = (13x - 7)°$, find x.

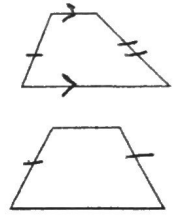
$13x - 7 = 45$
$13x = 52$
$x = 4$

Trapezoids have only one **set of parallel lines.**

- The parallel sides are called bases.
- The non-parallel sides are called legs.

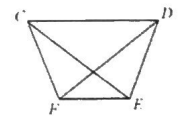
Properties of Isosceles Trapezoids:

- Legs are $\cong$ (congruent)
- Diagonals are $\cong$ (congruent)
- Base angles are $\cong$ (congruent)
- Opposite angles are supplementary



The **midsegment of a trapezoid,** joins the midpoints of the legs and is parallel to the bases. Its length is equal to the average of the lengths of the bases.

Use isosceles trapezoid *CDEF* for 17 and 18.



17. If $CE = 9x - 22$ and $FD = 4x + 3$, find CE.

$9x - 22 = 4x + 3$

$5x = 25$

$x = 5$

$CE = 9(5) - 22$

$= 23$

18. If $m\angle FCD = (8x - 1)^\circ$ and $m\angle EDC = (3x + 39)^\circ$, find $m\angle DEF$.

$8x - 1 = 3x + 39$

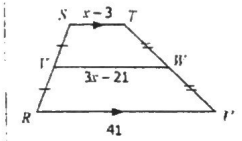
$5x = 40$

$x = 8$

$\angle FCD: 8(8) - 1 = 63^\circ$

$\angle DEF: 180 - 63 = 117^\circ$

19. Find VW.



$\frac{x - 3 + 41}{2} = 3x - 21$

$x + 38 = 2(3x - 21)$

$x + 38 = 6x - 42$

$80 = 5x$

$16 = x$

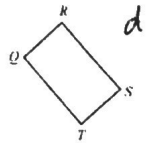
$VW: 3(16) - 21$

$= 27$

* midpoint $= \frac{b_1 + b_2}{2}$

Topic #3: Quadrilaterals in the Coordinate Plane

20. On rectangle $QRST$ below, if Q is located at (-6, -1) and S is located at (1, -5), find RT.



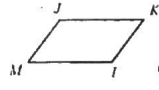
$d = \sqrt{(-6-1)^2 + (-1-(-5))^2}$

$= \sqrt{(-7)^2 + (4)^2}$

$= \sqrt{49 + 16}$

$\overline{QS} \cong \overline{RT}$ $= \sqrt{65} \approx 8.1$

21. The diagonals of parallelogram $JKLM$ below intersect at point (2, 5). If K is located at (8, 7), what are the coordinates of point M?



(2, 5) = midpoint

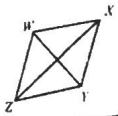
$2 = \frac{8 + x}{2}$ $\quad 5 = \frac{7 + y}{2}$

$4 = 8 + x$ $\quad 10 = 7 + y$

$-4 = x$ $\quad 3 = y$

$(-4, 3)$

22. On rhombus $WXYZ$ below, if Z is located at (-7, 3) and X is located at (-2, 8), find the slope of $\overline{WY}$.

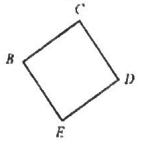


⊥ to $\overline{ZX}$

$\frac{3 - 8}{-7 - -2} = \frac{-5}{-5} = 1$

$\overline{WY}$ slope $= -1$

23. On square $BCDE$ below, if E is located at (4, -9) and D is located at (10, -5), find the perimeter of the square.



All sides are ≅

$d = \sqrt{(4-10)^2 + (-9-5)^2}$

$d = \sqrt{(-6)^2 + (-4)^2}$

$= \sqrt{36 + 16}$

$= \sqrt{52} \approx 7.2$

$4(7.2) \approx 28.8$

* $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

* midpoint $= \left(\frac{x + x}{2}, \frac{y + y}{2}\right)$

* Slope $= \left(\frac{y_2 - y_1}{x_2 - x_1}\right)$