Name _____ Hour _____

Polygon Unit Test Review

Directions: You must show all work for all problems below. For the problems where you have a quadrilateral and use their properties, justify the set up, and provide the geometry. (Some may not have the information to do everything i.e. if no points are there, you cannot show the geometry). Failure to do so will result in a zero.

1. Find the sum of the measures of the interior angles of a convex 39-gon.

2. Find the sum of the measures of the exterior angles of a convex 21-gon.

3. Find the measure of an interior angle of a regular polygon with 20 sides. Round to the nearest tenth if necessary.

4. Find the measure of each exterior angle for a regular heptagon. Round to the nearest tenth if necessary.

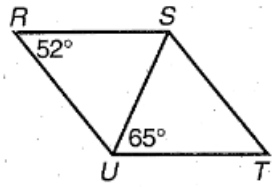
5. A regular polygon has an exterior angle with a measure of 20°. Find the number of sides.

6. A regular polygon has an interior angle with a measure of 120°. Find the number of sides.

7. Fill in the following table:

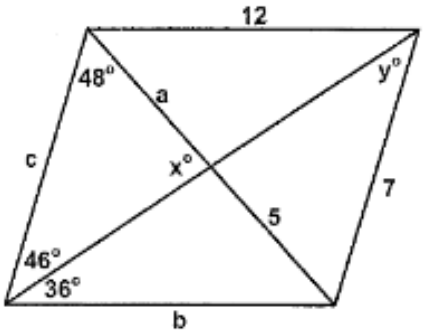
Number of Sides	Name of Polygon
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
n	

8. For parallelogram *RSTU*, find $m\angle$RSU and $m\angle$RUS.



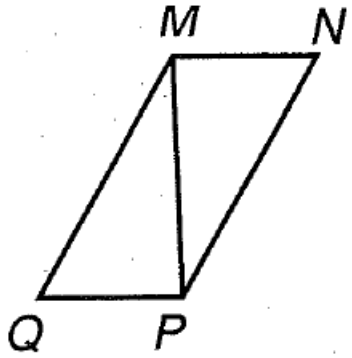
$m\angle$RSU = _____ $m\angle$RUS = _____

9. Find side lengths *a*, *b*, and *c*, and angles *x* and *y* so that the figure below is a parallelogram.



a = _____ b = _____ c = _____ x = _____ y = _____

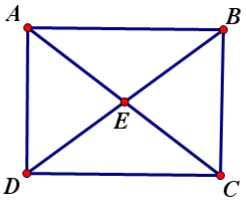
10. Find *x* so that the quadrilateral is a parallelogram. Then find the side length of *MP*, *QP*, and *MN*.



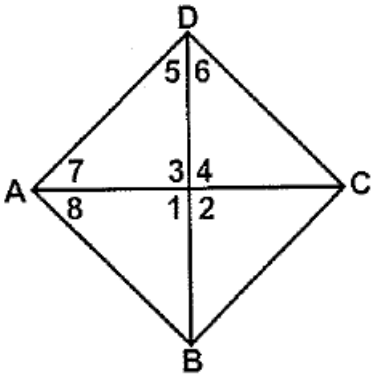
$MP = 9x + 6$
$QP = 4x$
$MN = 5x - 6$

x = _____ MP = _____ QP = _____ MN = _____

11. ABCD is a square. If AC = 16 and BD = 2x + 4, find x.



12. For rhombus *ABCD*, $m\angle 8 = 35$, find the $m\angle 1$, $m\angle 2$, $m\angle 3$, $m\angle 4$, $m\angle 5$, $m\angle 6$, and $m\angle 7$.



$m\angle 1$ = _____ $m\angle 2$ = _____

$m\angle 3$ = _____ $m\angle 4$ = _____

$m\angle 5$ = _____ $m\angle 6$ = _____

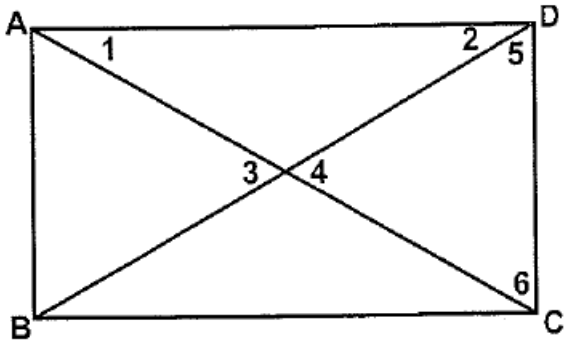
$m\angle 7$ = _____

13. ABCD is a rectangle. If $m\angle 1 = 20$, find the $m\angle 2$, $m\angle 3$, $m\angle 4$, $m\angle 5$, and $m\angle 6$.

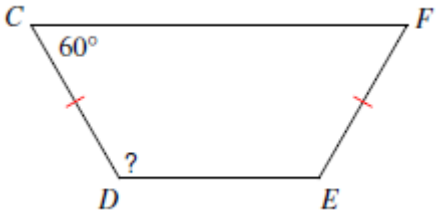
$m\angle 2$ = _____ $m\angle 3$ = _____

$m\angle 4$ = _____ $m\angle 5$ = _____

$m\angle 6$ = _____



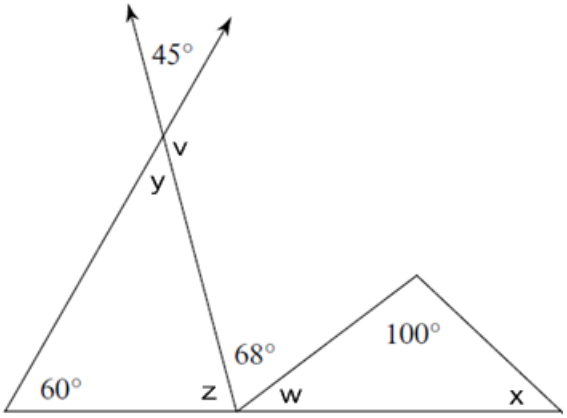
14. For isosceles trapezoid *CDEF*, find $m\angle F$, $m\angle E$, $m\angle D$, and *EF*.



$m\angle F$ = _____ $m\angle D$ = _____

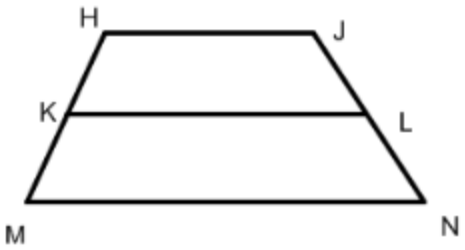
$m\angle E$ = _____

15. Find all of the missing angles.

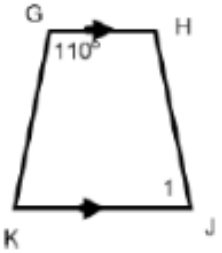


v = _____ w = _____ x = _____ y = _____ z = _____

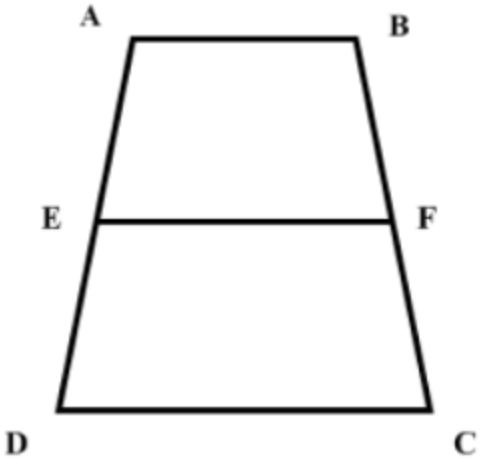
16. LK is the midsegment of trapezoid HJNM. Find MN if HJ = 5 and LK = 25.



17. For isosceles trapezoid GHJK, find <1.



18. Given isosceles trapezoid ABCD, EF is the median. Find EF, AD, and m<AEF if AB=10, CD = 20, AE = y + 5, FC = 2y – 10, and m<EFC =130

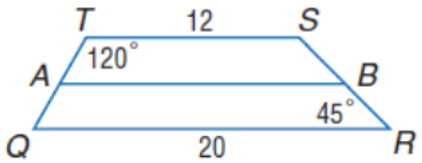


EF = _____

AD = _____

m<AEF = _____

19. For trapezoid *QRST*, *A* and *B* are midpoints of the legs. Find *AB*, $m\angle Q$, and $m\angle S$.

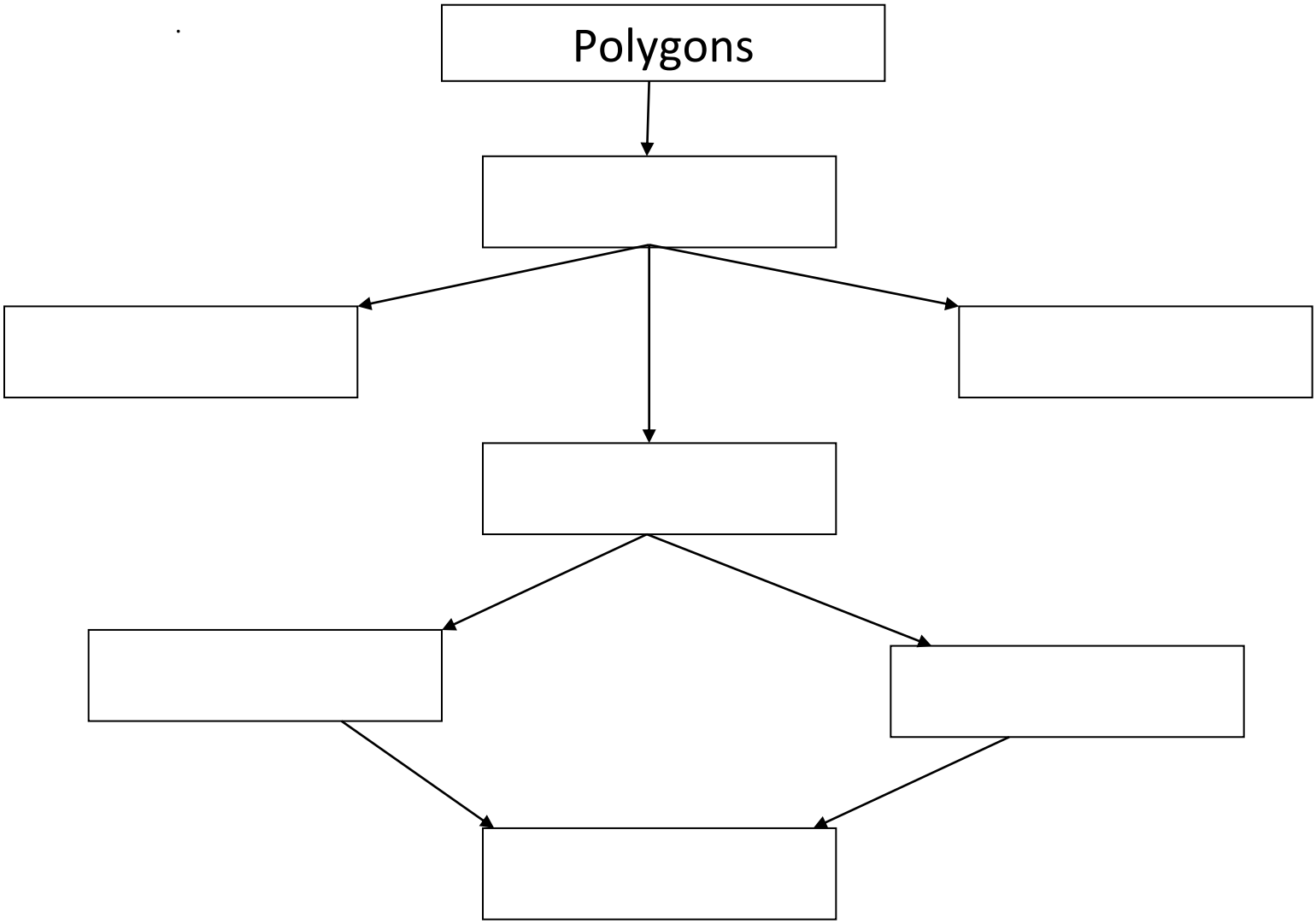


AB = _____

m<S = _____

m<Q = _____

20. Fill in the following chart with the correct polygon name:



21. What are the properties of parallelograms?

22. What are the properties of rectangles?

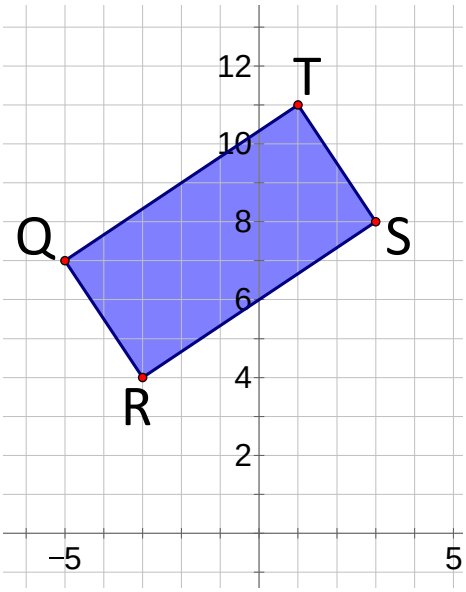
23. What are the properties of rhombi?

24. What are the properties of squares?

25. What are the properties of trapezoids?

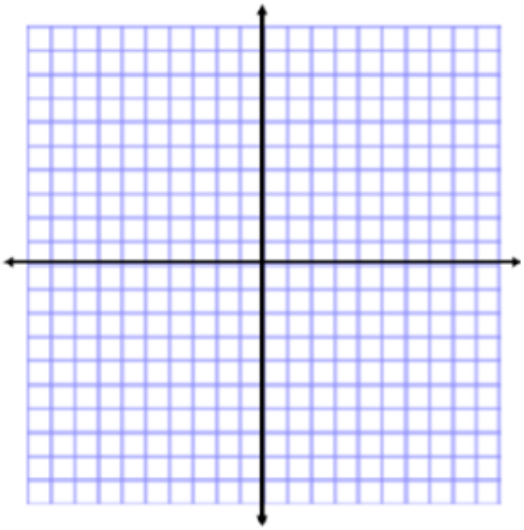
26. What are the properties of an isosceles trapezoid?

27. Classify *QRST* with vertices Q(-5,7), R(-3, 4), *S*(3, 8), and *T*(1, 11). SHOW ALL WORK!!!!



28. Determine whether the given vertices represent a rectangle, rhombus, or square by using slope and distance.

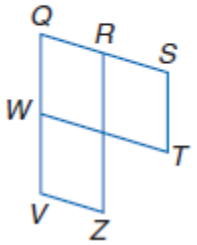
A(1, 1) B(-1, -1) C(1, -1) D(-1, 1)



29. You will have a proof on your test. Remember, the justifications are all of those that we have learned along with using the properties of each of our quadrilaterals. Here is an example of what you could see:

Given: ▱$VZRQ$ and ▱$WQST$

Prove: $\angle Z \cong \angle T$



1. ▱$VZRQ$ and ▱$WQST$	1. _____
2. <Z ≅ <Q <Q ≅ <T	2. _____
3._____	3. _____

30. You will have a few problems about coordinate geometry. Use your notes and homework to study for the test. Some examples are listed on there for you ☺