Geometry Chapter 6 Review (Not Worth pts)

Name

State whether each sentence is true or false. If it is false, replace the underlined word or phrase to make a true sentence.

- 1. If a parallelogram is a <u>rectangle</u>, then the diagonals are congruent.
- 2. A midsegment of a trapezoid is a segment that connects any two nonconsecutive vertices.
- 3. The diagonals of a rhombus are perpendicular.
- 4. A rectangle is not always a parallelogram.
- 5. A rectangle that is also a rhombus is a kite.

Find the sum of the measures of the interior angles of each regular convex polygon. Then find the measure of ONE interior angle. Round to the nearest tenth if necessary.

6. decagon 7. 15-gon 8. heptagon

Find the sum of the measures of the exterior angles of each regular convex polygon. Then find the measure of ONE exterior angle.

9. dodecagon 10. 18-gon 11. hexagon

The measure of an interior angle of a regular polygon is given. Find the number of sides in the polygon. Round to the nearest whole number if necessary.

12. 135 13. 166.15 14. 160

Use **□**ABCD to find each measure.

15. m∠ADC 16. AD

17. AB 18. m∠BCD

Given that 19 – 21 are parallelograms, find the value of each variable by writing an equation and showing all work.

D







115°

12

В

18

С



Determine whether each quadrilateral is a parallelogram. JUSTIFY your answer.



26. a) Quadrilateral ABCD is a rectangle. If AG = 6k + 44 and DG = 8k + 16, find k. Show all your work.



b) Justify how you found your answers by listing 2 properties of special quadrilaterals that you used.





Quadrilateral EFGH is a rectangle.

- 29. If m \angle FEG = 57, find m \angle GEH.
- 30. If m \angle HGE = 13, find m \angle FGE.
- 31. If FK = 32 ft, find EG.
- 32. Find m \angle HEF + m \angle EFG.



ABCD is a rhombus. If EB = 9, AB = 12, and m \angle ABD = 55, find each measure.

- 33. AE 34. m∠BDA
- 35. CE 36. m∠ACB

Quadrilateral ABCD is an isosceles trapezoid.

- 37. Which angle is congruent to $\angle BCD$?
- 38. Which side is parallel to \overline{AB} ?
- 39. Which segment is congruent to \overline{AC} ?





Quadrilateral MNOP is a rhombus. Find each value or measure.

Ζ

Y

40. m∠MRN

- 41. If PR = 12, find RN.
- 45. If $m \angle PON = 124$, find $m \angle POM$.

Find each measure.





- a) All rectangles are squares
- c) All rectangles are parallelograms
- 48. Quadrilateral ABCD is a parallelogram. Find the value of x.
- b) all rhombi are squares
- d) All parallelograms are rectangles



Graph QRST and then determine what kind of parallelogram you made . List ALL that apply. EXPLAIN your answer and SHOW ALL WORK. (Slopes, distances, etc)









Use the graph to answer each question.

- 51. Find the **length** of diagonal **SU**. Use the Distance Formula to verify your answer.
- 52. Find the slope of \overline{RU} . 53. Find the **length** of side \overline{RU} .



- 54. What is the midpoint of \overline{SU} ? Use the Midpoint Formula to verify your answer.
- 55. What type of quadrilateral is RSTU? Justify by using the properties and/or definitions for this type of quadrilateral.

56. Which formula or formulas do you need to use to prove that a quadrilateral forms a parallelogram?

- a) Slope Formula
- b) Distance Formula or Slope Formula or Midpoint Formula
- c) Distance Formula d) Slope Formula and Midpoint Formula

57. State TWO things that are true of a rhombus that are NOT true of a "generic" parallelogram.



58. State TWO properties of KITES

Answers: 1. True 2. False, diagonal 3. True 4. False, always 5. False, square 6. 1440, 144 7. 2340, 156 8. 900, 128.6 9. 360, 30 10. 360, 20 11. 360, 60 12. 8 13. 26 14. 18 15. 65 16. 18 17. 12 18. 115 19. 5y = 60, y = 12, x + 4 = 3x - 6, x = 5 20. 2x + 41 = 115, x = 37, 2y + 19 = 3y + 13, y = 6 21. 12x - 8 = 14x - 34, x = 13 22. 11x + 30 = 360, x = 30 23. Yes diagonals bisect each other 24. Yes 1 pair of opp sides is both // and \approx . 25. no consec sides are \approx , not opposite sides 26a) 6k + 44 = 8k + 16, k = 14 b) diagonals of parallelograms bisect each other and diagonals of rectangles are \approx 27. 45 28. 60 29. 33 30. 77 31. 64 ft 32. 180 33. $\sqrt{63} = 3\sqrt{7} \approx 7.9$ 34. 55 35. √**63** ≈ **7.9** 36. 35 37. ∠ADC 38. **DC** 39. **BD** 40. 90 41. 12 42. 62 43. √**369** ≈ **19.2** 44. 68 45. 122 46. 8 47. C 48. 50 49. Slopes: ST = 1, RQ = 1, TQ = -1, SR = -1 opposite sides parallel means this is a parallelogram. Consec sides \perp means it is also a rectangle. Distances: ST = $\sqrt{72} = 6\sqrt{2}$, RQ = $\sqrt{72} = 6\sqrt{2}$, TQ = $\sqrt{72} = 6\sqrt{2}$, SR = $\sqrt{72} = 6\sqrt{2}$ all sides \cong means it is also a rhombus and a square. 50. Slopes: $QR = \frac{2}{7}$, $TS = \frac{2}{7}$, RS = $-\frac{2}{7}$, QT = $-\frac{2}{7}$ opposite sides parallel means this is a parallelogram. Consec sides are not \perp Distances: QR = $\sqrt{53}$, RS = $\sqrt{53}$, ST = $\sqrt{53}$, QT = $\sqrt{53}$, all sides \cong means it is also a rhombus. 51. $\sqrt{136} = 2\sqrt{34}$ 52. 3 53. $\sqrt{40} = 2\sqrt{10}$ 54. (0, -1) 55. midpt of RT = (0, -1) parallelogram – diagonal bisect each other 56. B 57. All sides \cong , diagonals are \perp 58. diagonals are \perp and 2 pairs of consec sides \cong (or exactly 1 pair of opp angles \cong)