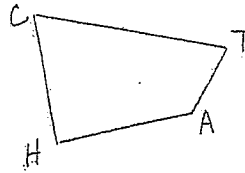


Module 9

Fill in an answer for #1-13.



use for #1-3

1. Write two pairs of opposite sides.
 \overline{CH} and \overline{AT} , \overline{CT} and \overline{HA}
2. Write two pairs of opposite angles.
 $\angle C$ and $\angle A$, $\angle H$ and $\angle T$
3. Write four pairs of consecutive angles.
 $\angle C$ and $\angle H$, $\angle C$ and $\angle T$, $\angle H$ and $\angle A$, $\angle A$ and $\angle T$
4. A quadrilateral with both pairs of opposite sides parallel is a(n) Parallelogram.
5. A parallelogram with four right angles is a(n) rectangle.
6. A parallelogram with four congruent sides is a(n) rhombus.
7. A parallelogram with four right angles and four congruent sides is a(n) square.
8. A quadrilateral with exactly one pair of parallel sides is a(n) Trapezoid.
9. The parallel sides of a trapezoid are the legs of the trapezoid.
10. The non-parallel sides of a trapezoid are the bases of the trapezoid.
11. A trapezoid with congruent legs is a(n) Isosceles trapezoid.
12. The segment that joins the midpoints of the legs of a trapezoid is the midsegment of the trapezoid.
13. A quadrilateral with two distinct pairs of congruent, adjacent sides is a(n) Kite.

For #28-37, classify each statement as *true* or *false*. Write out your answer.

28. Every square is a rectangle. True
29. Every rhombus is a square. False
30. Diagonals of a kite are perpendicular. True
31. Opposite angles of a trapezoid are congruent. False
32. Diagonals of an isosceles trapezoid are congruent. True
33. Diagonals of a parallelogram bisect each other. True
34. Diagonals of a rhombus bisect pairs of opposite angles. True
35. Some parallelograms are trapezoids. False
36. Some parallelograms are kites. False
37. Some parallelograms are rectangles. True

For #38-46, quad. GEOM is a parallelogram.

38. If $EO = 8$, then $GM = \underline{8}$

39. If $TM = 7$, then $ET = \underline{7}$ and $EM = \underline{14}$

40. If $OG = 21$, then $GT = \underline{10.5}$

41. If $m\angle GMO = 122^\circ$, then $m\angle EGM = \underline{58^\circ}$

42. If $m\angle 6 = 25^\circ$ and $m\angle 5 = 78^\circ$, then $m\angle GEO = \underline{103^\circ}$

43. If $m\angle 5 = 78^\circ$, then $m\angle \underline{1} = 78^\circ$

44. If $m\angle EOM = 55^\circ$, then $m\angle EGM = \underline{55^\circ}$ and $m\angle GMO = \underline{125^\circ}$

45. If $EG = 5x + 18$ and $OM = 7x + 2$, then $x = \underline{8}$ (Show work).

$$5x + 18 = 7x + 2$$

$$2x = 16$$

46. If $OT = 8y - 3$ and $OG = 7y + 12$, then $y = \underline{2}$ (Show work).

$$7y + 12 = 2(8y - 3)$$

$$16y - 6 = 7y + 12$$

$$9y = 18$$

For #47-52, use the given information to determine if BENG is a parallelogram. Answer yes or no. If your answer is yes, then write a brief reason why.

47. $\overline{BL} \cong \overline{NL}$ and $\overline{GL} \cong \overline{EL}$ yes

Diagonals bisect each other

48. $\angle 1 \cong \angle 2$ and $\angle 3 \cong \angle 4$ yes

Alt. Interior angles are \cong

49. $\angle EBG \cong \angle GNE$ and $\angle BGN \cong \angle BEN$ yes

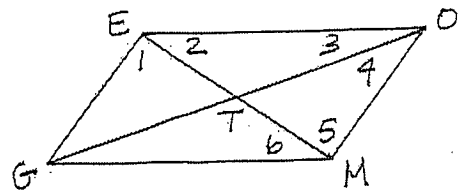
Opposite angles are \cong

50. $\overline{BG} \cong \overline{EN}$ and $\overline{BE} \parallel \overline{GN}$ NO

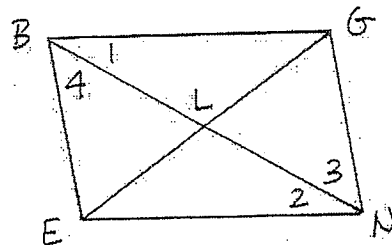
51. $\overline{BG} \cong \overline{EN}$ and $\overline{BE} \cong \overline{GN}$ yes

Opposite sides are \cong

52. $\overline{BG} \cong \overline{EN}$ and $\angle 1 \cong \angle 2$ NO



use for #38-46



use for #47-52

For #53-57, quad.REDS is a rectangle.

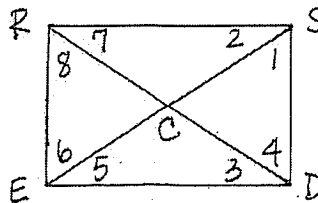
53. If $RC = 12$, then $ES = \underline{24}$

54. If $SE = 17$, then $CD = \underline{8.5}$

55. $m\angle ERS = \underline{90^\circ}$

56. If $m\angle 1 = 58$, then $m\angle 2 = \underline{32^\circ}$, $m\angle 4 = \underline{58^\circ}$, $m\angle 3 = \underline{32^\circ}$,
 $m\angle 5 = \underline{32^\circ}$, $m\angle 6 = \underline{58^\circ}$, $m\angle 8 = \underline{58^\circ}$, $m\angle 7 = \underline{32^\circ}$,
 $m\angle SCD = \underline{64^\circ}$, $m\angle ECD = \underline{116^\circ}$

57. $\triangle RCS$ is a(n) Isosceles triangle.



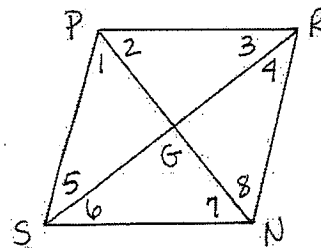
use for #53-57

For #58-62, quad.SPRN is a rhombus.

58. If $SP = 8.2$, then $PR = \underline{8.2}$

59. $m\angle RGN = \underline{90^\circ}$

60. If $m\angle 1 = 54$, then $m\angle 2 = \underline{54^\circ}$, $m\angle 3 = \underline{36^\circ}$,
 $m\angle 4 = \underline{36^\circ}$, $m\angle 5 = \underline{36^\circ}$, $m\angle 6 = \underline{36^\circ}$,
 $m\angle 7 = \underline{54^\circ}$, $m\angle 8 = \underline{54^\circ}$



use for #58-62

61. $\triangle SPR$ is a(n) Isosceles triangle.

62. $\triangle SPG$ is a(n) Right triangle.

For #63-67, quad.HOPE is an isosceles trapezoid.

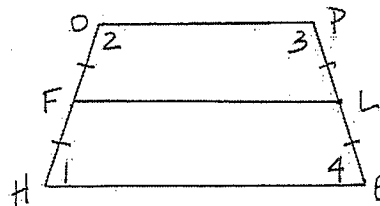
63. If $m\angle 1 = 73$, then $m\angle 2 = \underline{107^\circ}$, $m\angle 3 = \underline{107^\circ}$,
 $m\angle 4 = \underline{73^\circ}$

64. If $OP = 12$ and $HE = 17$, then $FL = \underline{14.5}$

65. If $OP = 11$ and $FL = 18$, then $HE = \underline{25}$

66. If $HE = 23$ and $FL = 19.5$, then $OP = \underline{16}$

67. If $HE = 54$ and $OP = 27$, then $FL = \underline{40.5}$



use for #63-67

For #68-73, quad.BLUS is a kite.

68. $\triangle BSU$ is a(n) Isosceles triangle.

69. $\triangle UKS$ is a(n) Right triangle.

70. $m\angle LKU =$ 90°

71. $\angle LBS \cong \angle LUS$

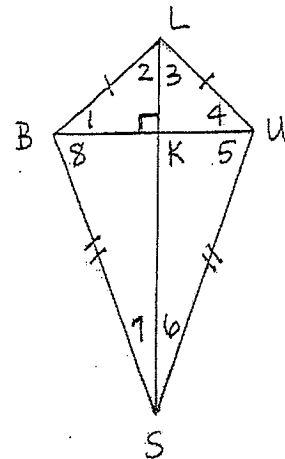
72. $\overline{BK} \cong \overline{UK}$

73. If $m\angle 1 = 43$ and $m\angle LUS = 114$, then

$m\angle 2 =$ 47° , $m\angle 3 =$ 47° , $m\angle 4 =$ 43° ,

$m\angle 5 =$ 71° , $m\angle 6 =$ 19° , $m\angle 7 =$ 19° ,

$m\angle 8 =$ 71° , $m\angle BLU =$ 94° , $m\angle BSU =$ 38° .



use for #68-73

For #74-81, fill in all the quadrilaterals that fit the given condition. Choose from: *parallelogram, rectangle, rhombus, square, trapezoid, isosceles trapezoid, kite.*

74. All sides are congruent rhombus, square

75. Diagonals are perpendicular rhombus, square, kite

76. Diagonals are congruent rectangle, square, Isosceles trapezoid

77. Opposite sides are congruent parallelogram, rectangle, rhombus, square

78. Diagonals bisect pairs of opposite angles rhombus, square

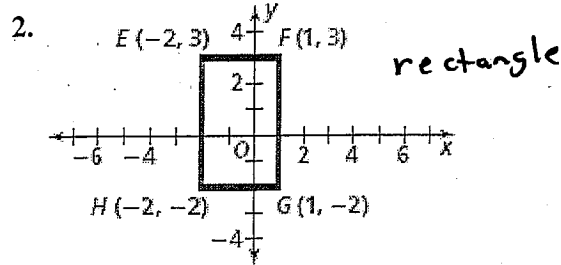
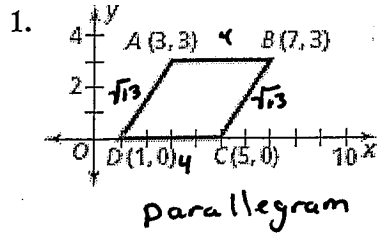
79. All angles are right angles rectangle, square

80. Exactly one pair of parallel sides Trapezoid, Isosceles Trapezoid

81. Diagonals bisect each other parallelogram, rectangle, rhombus, square

Practice Review Worksheet

Determine the most precise name for each quadrilateral.



Determine the most precise name for each quadrilateral with the given vertices. Justify

Graph Paper your reasoning.

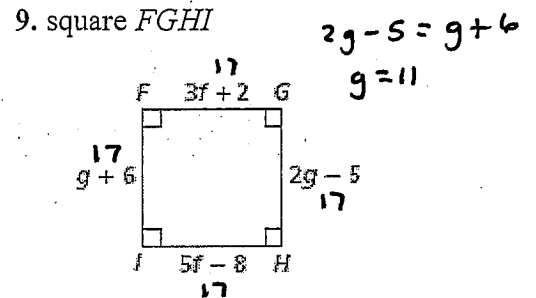
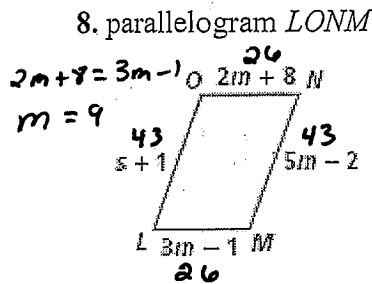
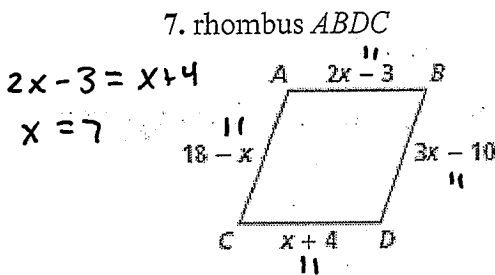
3. $A(1, 4), B(3, 5), C(6, 1), D(4, 0)$

4. $W(0, 5), X(3, 5), Y(3, 1), Z(0, 1)$

5. $A(-2, 4), B(2, 6), C(6, 4), D(2, -3)$

6. $P(-1, 0), Q(-1, 3), R(2, 4), S(2, 1)$

Find the values of the variables. Then find the lengths of the sides of each quadrilateral.



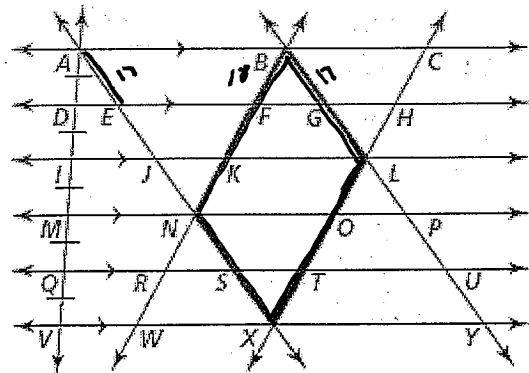
If $AE = 17$ and $BF = 18$, find the measures of the sides of parallelogram $BNXL$.

9. $BN = 54$

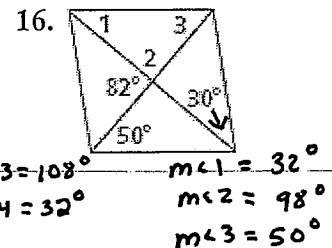
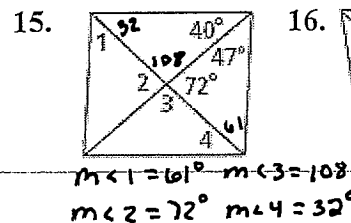
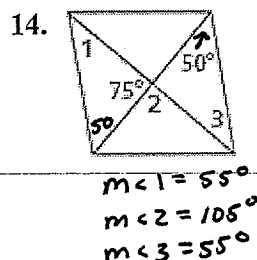
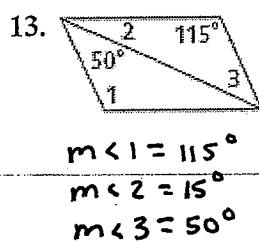
10. $NX = 34$

11. $XL = 54$

12. $BL = 34$



Find the measures of the numbered angles for each parallelogram.



State whether the information given about quadrilateral $SMTP$ is sufficient to prove that it is a parallelogram.

17. $\angle SPT \cong \angle SMT$ NO

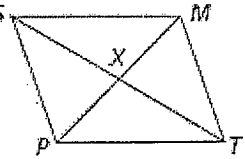
19. $\overline{SM} \cong \overline{PT}, \overline{SP} \cong \overline{MT}$ yes
Both opp. sides are \cong

21. $\overline{PX} \cong \overline{MX}, \overline{SX} \cong \overline{TX}$ yes
Diagonals bisect each other

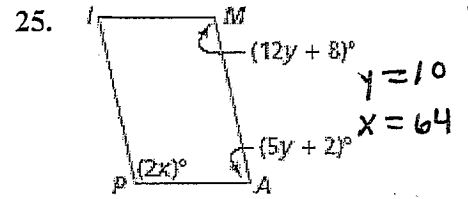
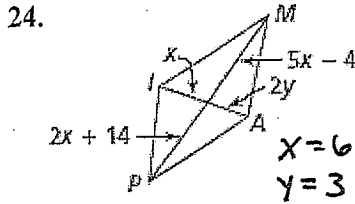
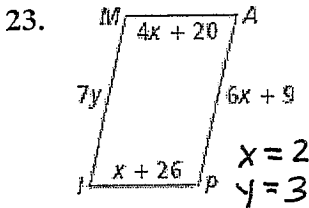
18. $\angle SPX \cong \angle TMX, \angle TPX \cong \angle SMX$ yes
Both sides are parallel

20. $\overline{SX} \cong \overline{XT}, \overline{SM} \cong \overline{PT}$ NO

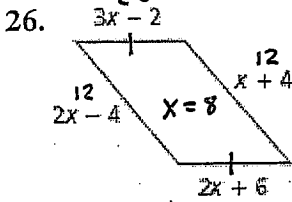
22. $\overline{SP} \cong \overline{MT}, \overline{SP} \parallel \overline{MT}$ yes
one pair of opp. sides are \cong and \parallel



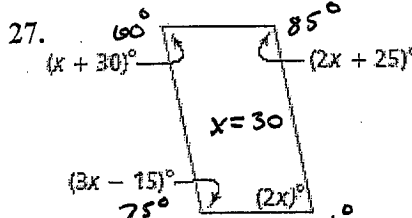
Find the values of x and y for which the figure must be a parallelogram.



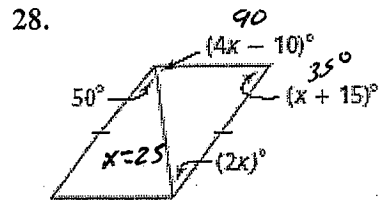
Find the value of x . Then tell whether the figure must be a parallelogram. Explain your answer.



Both opp. sides are \cong
yes, opp. sides are \cong



No, Both opp. \angle 's are not \cong



No, angles are not supplementary

Decide whether the quadrilateral is a parallelogram. Explain your answer.

