Q8B, [highlighted] **Geometry 8.4-8.6**
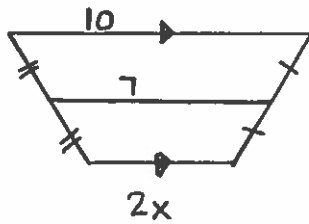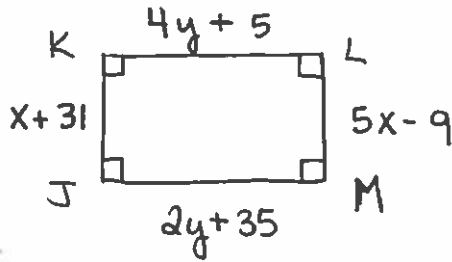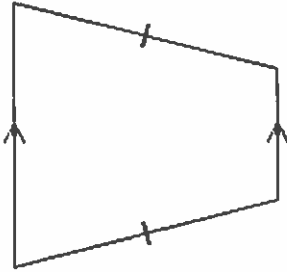
1. Find the value of x.

2. For any rhombus JKLM, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning.

$\angle L \cong \angle M$

3. Classify the special quadrilateral. Explain your reasoning. Then find the values of x and y.

4. Describe the figure using as many of these words as possible: rectangle, trapezoid, square, quadrilateral, parallelogram, rhombus.

5. For any rhombus JKLM, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning.

$\overline{JL} \cong \overline{KM}$

6. Find $m\angle J$, $m\angle L$, and $m\angle M$.
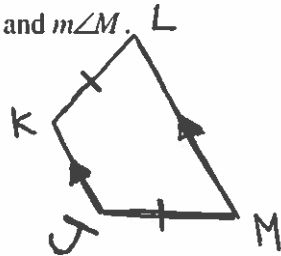
$\angle K = 118°$

7. If all four sides of a quadrilateral are congruent, the quadrilateral is _____.
    a. a rhombus
    b. a nonsquare rectangle
    c. a kite
    d. a trapezoid

8. The diagonals of a parallelogram always _____.
   a. are parallel
   b. bisect each other
   c. are congruent
   d. are perpendicular

9. Use slope or the Distance Formula to determine the most precise name for the figure: $A(-1, -4)$, $B(1, -1)$, $C(4, 1)$, $D(2, -2)$.
   (you do NOT have to graph it... if you can figure it out without graphing)
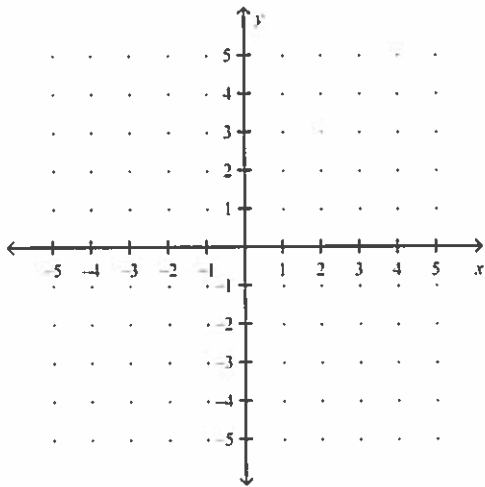
   a. trapezoid
   b. square
   c. rhombus
   d. kite

10. Choose the statement that is NOT always true.
    For an isosceles trapezoid _____.
    a. the diagonals are congruent
    b. the diagonals are perpendicular
    c. the base angles are congruent
    d. the legs are congruent

11. For any rectangle WXYZ, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning

    $\angle W \cong \angle X$

12. Which statement is true?
    a. All rectangles are squares.
    b. All quadrilaterals are parallelograms.
    c. All parallelograms are quadrilaterals.
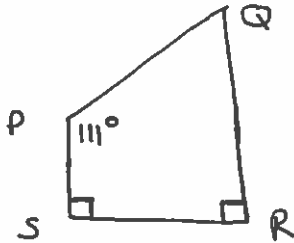   d. All quadrilaterals are squares.
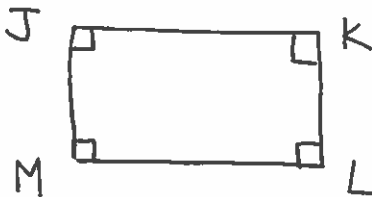
13. Find the value of x.
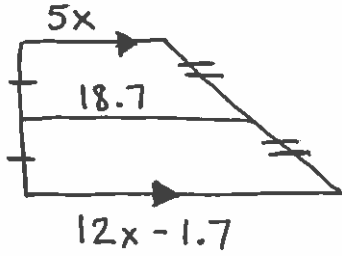
14. True or false: A square is a rectangle.

15. Name each quadrilateral - parallelogram, rectangle, rhombus, and square - for which the statement is true.

    Its diagonals are perpendicular.

16. Give the most specific name for the quadrilateral. Explain.

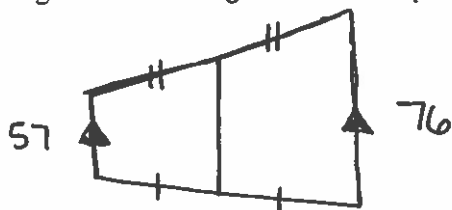17. Give the most specific name for the quadrilateral. Explain.

18. For any rectangle WXYZ, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning.

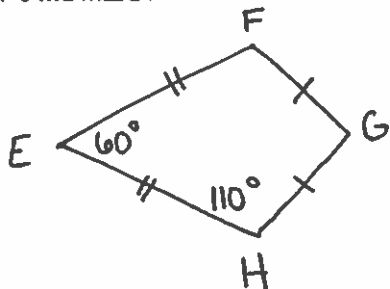$\overline{WX} \cong \overline{XY}$

19. True or false: A rectangle is an equiangular quadrilateral.

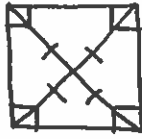20. Find the length of the midsegment of the trapezoid.

21. Which type of quadrilateral has no parallel sides?
    a.   trapezoid   c.   rhombus
    b.   rectangle   d.   kite

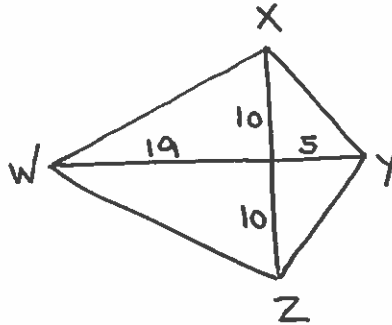22. EFGH is a kite. Find $m\angle G$.

23. Tell whether enough information is given in the diagram to classify the quadrilateral by the indicated name. Explain.

Square

24. Use Theorem 8.18 and the Pythagorean Theorem to find the side lengths of the kite.

25. The diagonals of rhombus ABCD intersect at E. Given that $m\angle BAC = 53''$ and $DE=8$, find the indicated measure.
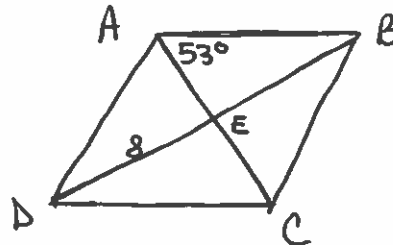
$m\angle DAC$

$m\angle AED$

$m\angle ADC$

DB

AE

AC

Q8B, Advanced Geometry 8.4-8.6
Answer Section

1. pg 541 #25   2
2. PG 531 #3   sometimes, JKLM would need to be a square.
3. pg 532 #27   Rectangle; JKLM is a quadrilateral with four right angles; 10, 15
4. trapezoid, quadrilateral
5. PG 531 #7   Sometimes, diagonals are congruent if the rhombus is a square.
6. pg 540 #9   118, 62, 62
7. A
8. B
9. C
10. B
11. PG 531 #9   Always; in a rectangle all interior angles measure 90 degrees.
12. C
13. Pg 541 #27   2.3
14. True
15. PG 531 #21   rhombus, square.
16. pg 546 #15.   Trapezoid; there is one pair of parallel sides.
17. pg 546 #14   rectangle; there are four right angles.
18. PG 531 #11   sometimes; adjacent sides are congruent if the rectangle is a square.
19. True
20. pg 540 #15   66.5
21. D
22. pg 541 #19   80
23. pg 547 #20   No; it could be a rectangle.
24. pg 541 #23 $XY = YZ = 5\sqrt{5}$, $WX = WZ = \sqrt{461}$
25. PG 532 #32-37; 53, 90, 74, 16, about 6.0, about 12.0

Q8B, Geometry 8.4-8.6

1. The diagonals of a parallelogram always _____.
   a. are perpendicular
   b. are congruent
   c. are parallel
   d. bisect each other

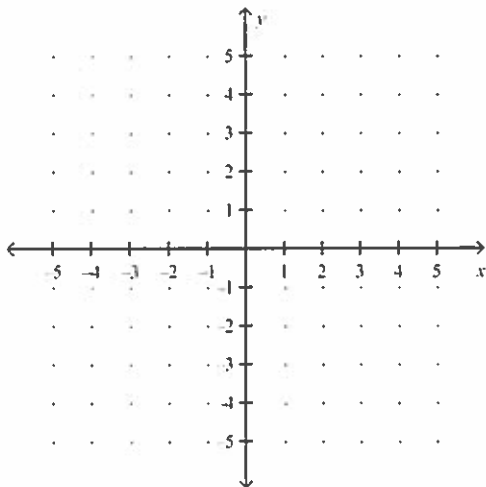2. Classify the special quadrilateral. Explain your reasoning. Then find the values of x and y.
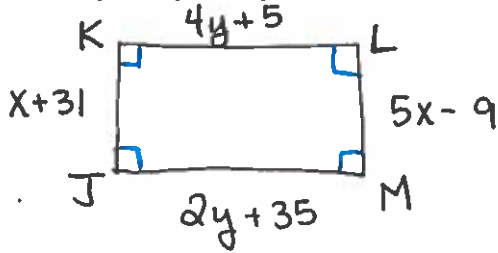
3. Choose the statement that is NOT always true.
   For an isosceles trapezoid _____.
   a. the diagonals are congruent
   b. the legs are congruent
   c. the base angles are congruent
   d. the diagonals are perpendicular

4. Use slope or the Distance Formula to determine the most precise name for the figure: $A(-1, -4)$, $B(1, -1)$, $C(4, 1)$, $D(2, -2)$.
   (you do NOT have to graph it... if you can figure it out without graphing)
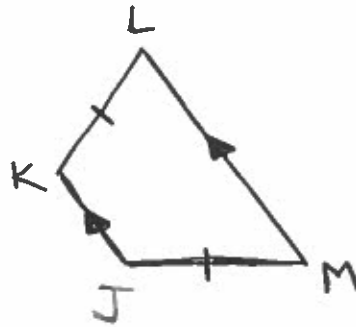

   a. square
   b. trapezoid
   c. kite
   d. rhombus

5. Tell whether enough information is given in the diagram to classify the quadrilateral by the indicated name. Explain.
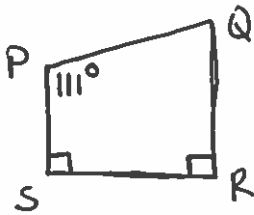
Square

6. Find $m\angle J$, $m\angle L$, and $m\angle M$.

$\angle K = 118°$

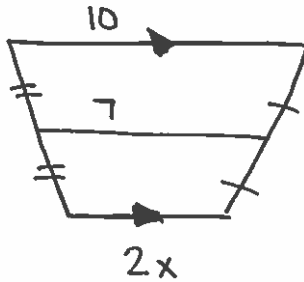7. Give the most specific name for the quadrilateral. Explain.

$111°$

8. For any rectangle WXYZ, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning.
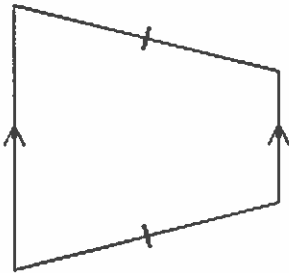
$\overline{WX} \cong \overline{XY}$

9. True or false: A rectangle is an equiangular quadrilateral.

10. Find the value of x.

11. Describe the figure using as many of these words as possible: rectangle, trapezoid, square, quadrilateral, parallelogram, rhombus.
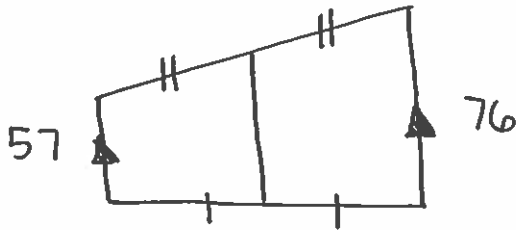

12. If all four sides of a quadrilateral are congruent, the quadrilateral is _____.
   a. a trapezoid
   b. a nonsquare rectangle
   c. a rhombus
   d. a kite

13. Use Theorem 8.18 and the Pythagorean Theorem to find the side lengths of the kite.
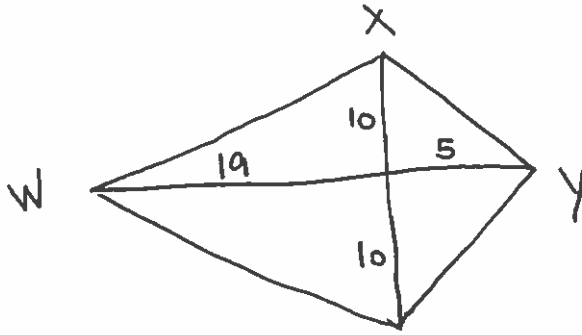
14. Find the length of the midsegment of the trapezoid.

15. Which type of quadrilateral has no parallel sides?
    a. rectangle   c. kite
    b. trapezoid   d. rhombus
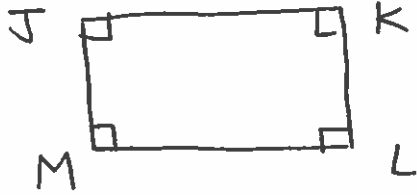
16. Name each quadrilateral - parallelogram, rectangle, rhombus, and square - for which the statement is true.
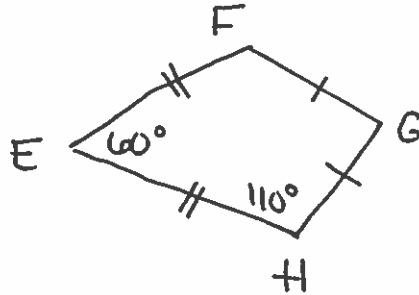
    Its diagonals are perpendicular.

17. For any rectangle WXYZ, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning

    $\angle W \cong \angle X$

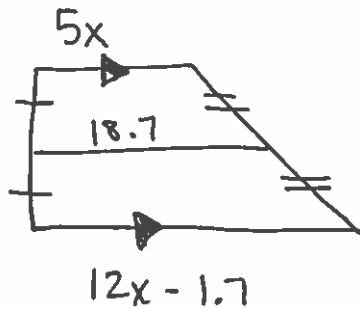18. Give the most specific name for the quadrilateral. Explain.

19. EFGH is a kite. Find $m\angle G$.

20. Which statement is true?
    a. All quadrilaterals are parallelograms.
    b. All parallelograms are quadrilaterals.
    c. All quadrilaterals are squares.
    d. All rectangles are squares.

21. Find the value of x.

22. The diagonals of rhombus ABCD intersect at E. Given that $m\angle BAC = 53°$ and $DE=8$, find the indicated measure.

$m\angle DAC$

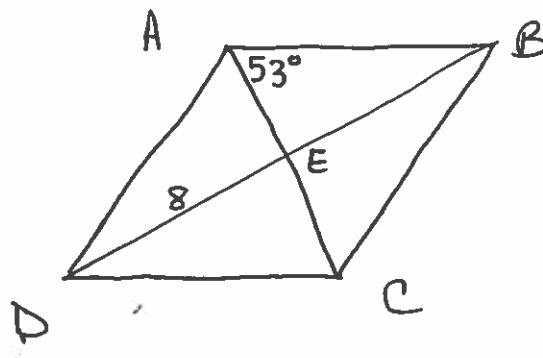$m\angle AED$

$m\angle ADC$

DB

AE

AC

23. True or false: A square is a rectangle.

24. For any rhombus JKLM, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning.

$\angle L \cong \angle M$

25. For any rhombus JKLM, decide whether the statement is always or sometimes true. Draw a diagram and explain your reasoning.

$\overline{JL} \cong \overline{KM}$

Q8B, Advanced Geometry 8.4-8.6
Answer Section

1. D
2. pg 532 #27   Rectangle; JKLM is a quadrilateral with four right angles; 10, 15
3. D
4. D
5. pg 547 #20   No; it could be a rectangle.
6. pg 540 #9   118, 62, 62
7. pg 546 #15.   Trapezoid; there is one pair of parallel sides.
8. PG 531 #11   sometimes; adjacent sides are congruent if the rectangle is a square.
9. True
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11. trapezoid, quadrilateral
12. C
13. pg 541 #23 $XY = YZ = 5\sqrt{5}$, $WX = WZ = \sqrt{461}$
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19. pg 541 #19   80
20. B
21. Pg 541 #27 2.3
22. PG 532 #32-37; 53, 90, 74, 16, about 6.0, about 12.0
23. True
24. PG 531 #3   sometimes, JKLM would need to be a square.
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