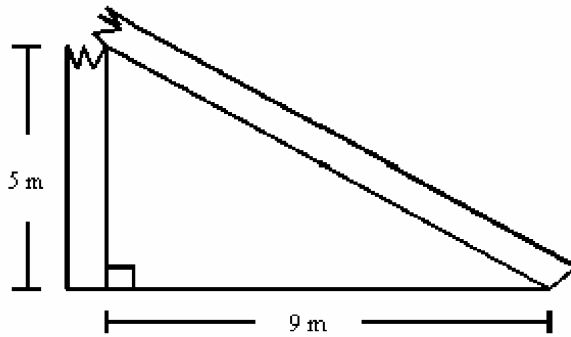**Geometry Mastery Test #8 Review#2**
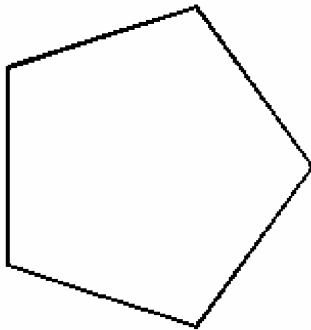
Numeric Response

1. A power pole broke and fell as shown.

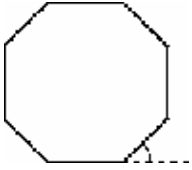   To the nearest tenth of a meter, what was the original height of the pole?

2. How many triangles are formed by drawing diagonals from one vertex in the figure? Find the sum of the measures of the angles in the figure.
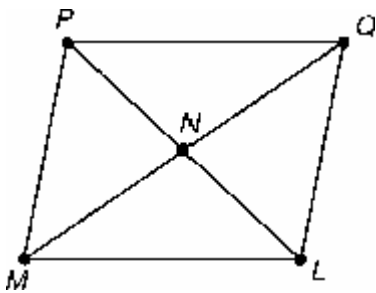
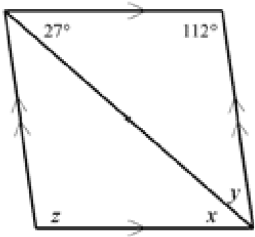3. The measure of each exterior angle of a regular octagon is _____.

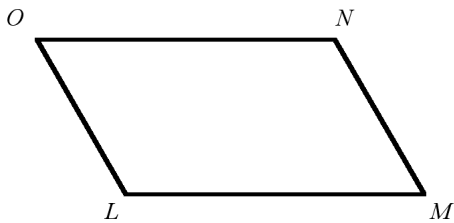4. Find the measure of each exterior angle of a regular polygon with 16 sides.

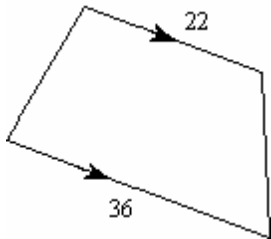5. For parallelogram $PQLM$ below, if $m\angle PML = 83°$, then $m\angle PQL =$_____ .

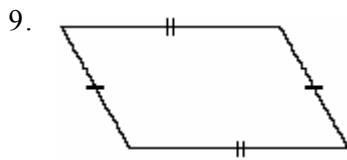6. Find the value of the variables in the parallelogram.

7. If $ON = 9x - 5$, $LM = 8x + 7$, $NM = x - 6$, and $OL = 6y + 7$, find the values of x and y given that $LMNO$ is a parallelogram.

8. For the trapezoid shown below, the measure of the midsegment is _____.

**What name best describes the quadrilateral?**

9.

10.

11. A ship in calm seas steamed 16 km in one direction, turned and steamed 20 km in another direction, and then returned 24 km back to its original position. The captain then plotted the ship's course on a nautical chart. She asked her first officer to look at the chart and describe the ship's path. Did the first officer describe it as an acute, obtuse, or right triangle? Then the second officer said she could further identify whether the path was scalene, isosceles, or equilateral. What did she determine?

12. A slide 4.4 m long makes an angle of 33° with the ground. How high is the top of the slide above the ground?

13. Liola drives 16 km up a hill that is at a grade of 10°. What horizontal distance, to the nearest tenth of kilometer, has she covered?
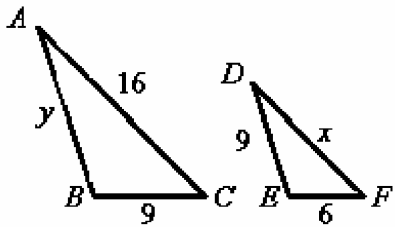
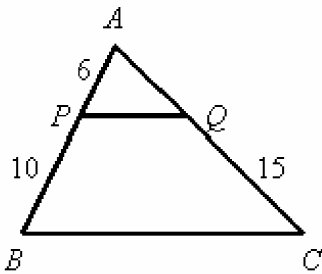14. Solve for x to the nearest degree.
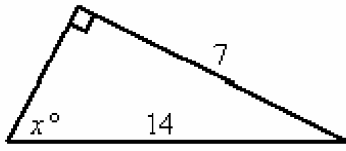
15. Given that $\triangle ABC \sim \triangle DEF$, solve for x and y.

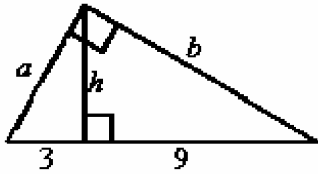16. Classify a triangle with sides 12, 18, and 24 as acute, obtuse, or right.

17. Given: $\overline{PQ} \parallel \overline{BC}$. Find the length of $\overline{AQ}$.
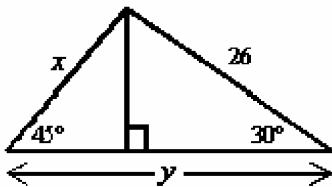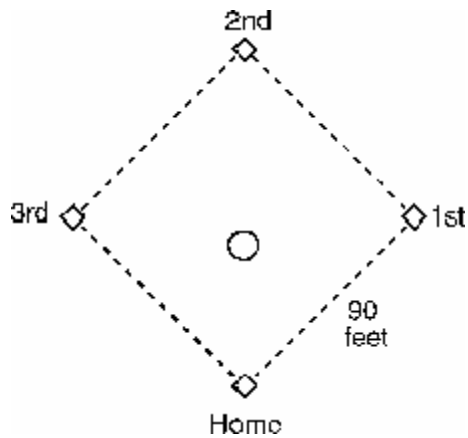
18. Find a, b, and h.

19. Find the value of x and y.

20. A baseball "diamond" is a square with a side length of 90 feet. How far is the throw from third base to first base? (Round your answer to one decimal place.)

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21. Find the height of the building when $\angle A = 35°$.
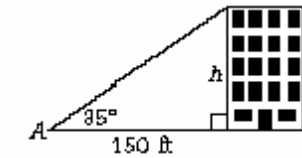
22. An airplane is flying at an elevation of 1500 feet. What is the airplane's angle of elevation from the runway when it is 5000 feet from the runway?
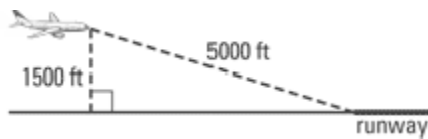
23. Find x and y.
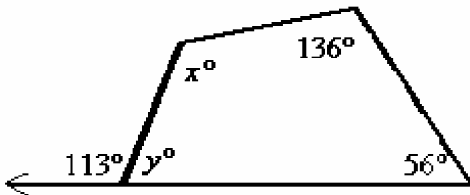
24. Find the number of sides of a convex polygon if the measures of its interior angles have a sum of 2340°.

25. What is the measure of each exterior angle in a regular pentagon?

26. Use the figure below.
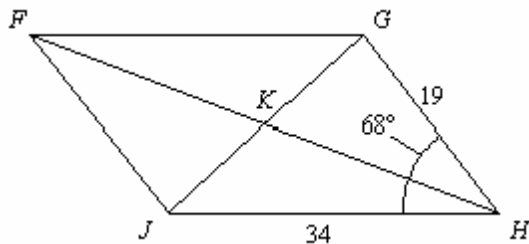
Given: $FGHJ$ is a parallelogram, $m\angle JHG = 68°$, $JH = 34$, $GH = 19$
a. Find $m\angle FJH$.
b. Find JF.
c. Find $m\angle GFJ$.
d. Find FG.

27. Given the following, determine whether quadrilateral $XYZW$ must be a parallelogram. Justify your answer.
$XW = WZ$ and $XY = YZ$.
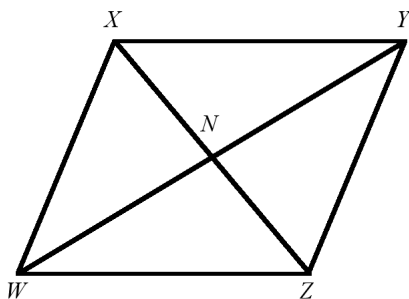
28. Given: Trapezoid $ABCD$ with midsegment $\overline{EF}$. If $EF = 23$ and $DC = 26$, find the length of $\overline{AB}$.
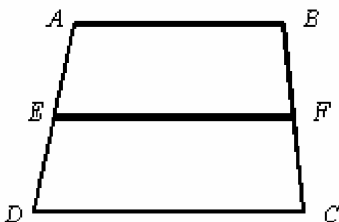
29. Find $m\angle T$ in the diagram, if $m\angle R = 150°$ and $m\angle S = 80°$.

30. Describe the figure using as many of these words as possible: rectangle, trapezoid, square, quadrilateral, parallelogram, rhombus.
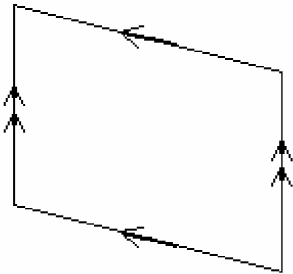
Geometry Mastery Test #8 Review#2
Answer Section

NUMERIC RESPONSE

1. ANS: 15.3

   TOP: Lesson 7.1 Apply the Pythagorean Theorem

SHORT ANSWER

2. ANS:
   3, 540°

   TOP: Lesson 8.1 Find Angle Measures in Polygons
3. ANS:
   45°

   TOP: Lesson 8.1 Find Angle Measures in Polygons
4. ANS:
   22.5°

   TOP: Lesson 8.1 Find Angle Measures in Polygons
5. ANS:
   83°

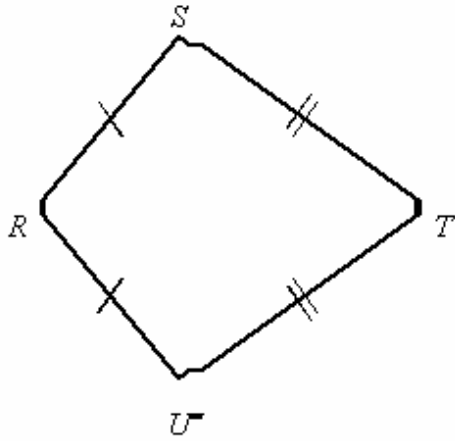   TOP: Lesson 8.2 Use Properties of Parallelograms
6. ANS:
   $x = 27°,\ y = 41°,\ z = 112°$

   TOP: Lesson 8.2 Use Properties of Parallelograms
7. ANS:
   $x = 12; y = -\dfrac{1}{6}$

   TOP: Lesson 8.2 Use Properties of Parallelograms
8. ANS:
   29

   TOP: Lesson 8.5 Use Properties of Trapezoids and Kites
9. ANS:
   parallelogram

   TOP: Lesson 8.6 Identify Special Quadrilaterals

10. ANS:
    kite

    TOP: Lesson 8.6 Identify Special Quadrilaterals
11. ANS:
    acute; scalene

    TOP: Lesson 7.2 Use the Converse of the Pythagorean Theorem
12. ANS:
    2.4 m

    TOP: Lesson 7.6 Apply the Sine and Cosine Ratios
13. ANS:
    15.8 km

    TOP: Lesson 7.6 Apply the Sine and Cosine Ratios
14. ANS:
    30

    TOP: Lesson 7.7 Solve Right Triangles
15. ANS:
    $x = 10.67, y = 13.5$

    TOP: Lesson 6.1 Use Similar Polygons
16. ANS:
    obtuse

    TOP: Lesson 7.2 Use the Converse of the Pythagorean Theorem
17. ANS:
    9

    TOP: Lesson 6.5 Use Proportionality Theorems
18. ANS:
    $a = 6, b = 6\sqrt{3}, h = 3\sqrt{3}$

    TOP: Lesson 7.3 Use Similar Right Triangles
19. ANS:
    $x = 13\sqrt{2}, y = 13 + 13\sqrt{3}$ or $13(1 + \sqrt{3})$

    TOP: Lesson 7.4 Special Right Triangles
20. ANS:
    127.3 ft

    TOP: Lesson 7.4 Special Right Triangles

21. ANS:

Using the tangent ratio $\tan A = \dfrac{\text{leg opposite } \angle A}{\text{leg adjacent to } \angle A}$, $\tan 35° = \dfrac{h}{150}$. So $h = 150\left(\tan 35°\right) \approx 150(0.7)$, or about 105 ft.

TOP: Lesson 7.5 Apply the Tangent Ratio

22. ANS:

About $72.5°$. $\cos x = \dfrac{1500}{5000}$ so $x = \cos^{-1}\left(\dfrac{1500}{5000}\right) \approx 72.5°$

TOP: Lesson 7.7 Solve Right Triangles

23. ANS:
$x = 101, y = 67$

TOP: Lesson 8.1 Find Angle Measures in Polygons

24. ANS:
15

TOP: Lesson 8.1 Find Angle Measures in Polygons

25. ANS:
72°

TOP: Lesson 8.1 Find Angle Measures in Polygons

26. ANS:
a. 112°
b. 19
c. 68°
d. 34

TOP: Lesson 8.2 Use Properties of Parallelograms

27. ANS:
No. The information does not justify the conclusion that the quadrilateral is a parallelogram.

TOP: Lesson 8.3 Show that a Quadrilateral is a Parallelogram

28. ANS:
20

TOP: Lesson 8.5 Use Properties of Trapezoids and Kites

29. ANS:
50°

TOP: Lesson 8.5 Use Properties of Trapezoids and Kites

30. ANS:
quadrilateral, parallelogram

TOP: Lesson 8.6 Identify Special Quadrilaterals