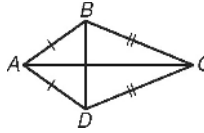


LESSON
9-5

Properties and Conditions for Kites and Trapezoids

Practice and Problem Solving: A/B

In kite $ABCD$, $m\angle BAC = 35^\circ$ and $m\angle BCD = 44^\circ$.
For Problems 1–3, find each measure.

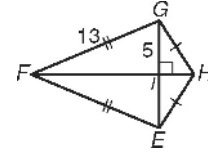


1. $m\angle ABD$

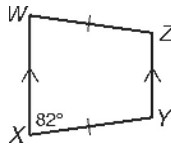
2. $m\angle DCA$

3. $m\angle ABC$

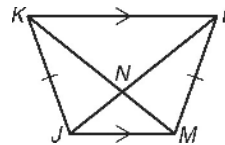
4. Find the area of $\triangle EFG$. _____



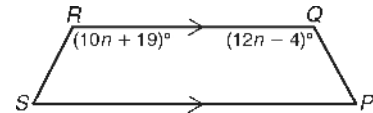
5. Find $m\angle Z$.



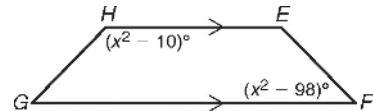
6. $KM = 7.5$ and $NM = 2.6$. Find LN .



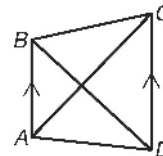
7. Find the value of n so that $PQRS$ is isosceles.



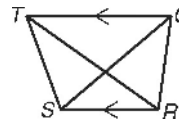
8. Find the values of x so that $EFGH$ is isosceles.



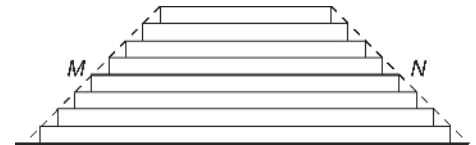
9. $BD = 7a - 0.5$ and $AC = 5a + 2.3$. Find the value of a so that $ABCD$ is isosceles.



10. $QS = 8z^2$, and $RT = 6z^2 + 38$. Find the values of z so that $QRST$ is isosceles.



Use the figure for Problems 11 and 12. The figure shows a **ziggurat**. A ziggurat is a stepped, flat-topped pyramid that was used as a temple by ancient peoples of Mesopotamia. The dashed lines show that a ziggurat has sides roughly in the shape of a trapezoid.



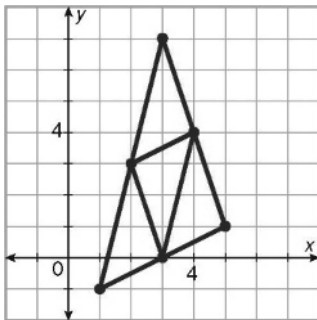
11. Each “step” in the ziggurat has equal height. Give the vocabulary term for \overline{MN} .

12. The bottom of the ziggurat is 27.3 meters long, and the top of the ziggurat is 11.6 meters long. Find MN .

10. rhombus
11. rectangle; rhombus

Practice and Problem Solving: C

1. Parallelogram and rhombus; Possible explanation: In a square or a rectangle, the interior angles must measure 90° . Therefore, the longest side of the triangle formed by any two sides and a diagonal must be the diagonal.
2. rhombus
3. $x\sqrt{3}$
4. 60° and 120°
5. 3
6. 1
7. 1
8. 1
9. an infinite number
10. 3
11. 4
12. 3
13. $(1, -1)$, $(5, 1)$, $(3, 7)$
14. midsegment triangle



Practice and Problem Solving: Modified

1. valid, perpendicular, opposite sides are congruent
2. valid, congruent, parallel, parallelogram
3. not valid, \overline{BC} , parallel
4. not valid, \overline{BD} , perpendicular
5. parallelogram
6. rectangle
7. rhombus
8. rectangle, rhombus

Reading Strategies

1. rectangle
2. rhombus
3. square
4. rectangle
5. square
6. rhombus
7. rhombus

Success for English Learners

1. You also need to know that one angle of $WXYZ$ is a right angle, and any two adjacent sides are congruent.
2. No; you also need to know that $\angle WZQ \cong \angle YZQ$ because you need to know that \overline{XZ} bisects a pair of opposite angles.

LESSON 9-5

Practice and Problem Solving: A/B

1. 55°
2. 22°
3. 123°
4. 60
5. 98°
6. 4.9
7. $n = 11.5$
8. $x = 12$ or -12
9. $a = 1.4$
10. $z = \sqrt{19}$ or $-\sqrt{19}$
11. trapezoid midsegment
12. 19.45 m

Practice and Problem Solving: C

1. Area = $\frac{1}{2} (AC)(BD)$
2. Yes; Possible answer: The length of AE is half the length of AC , and BE may be found from BA and AE by using the Pythagorean Theorem. BD is the sum of BE and ED . The area is $\frac{1}{2} (AC)(BD)$.
3. No; Possible answer: There is no way to use the Pythagorean Theorem to find the length of AE , and thus AC , with the information provided.