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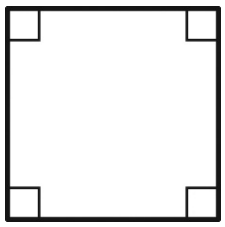
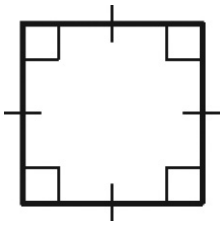
LESSON 9-3

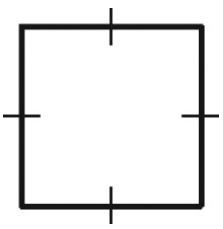
Properties of Rectangles, Rhombuses, and Squares

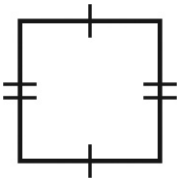
Practice and Problem Solving: A/B

Tell whether each figure is a parallelogram, rectangle, rhombus, or square based on the information given. Use the most specific name possible.

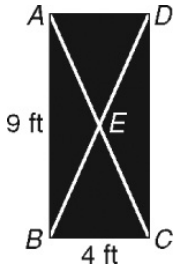
1. 

2. 

3. 

4. 

A modern artist's sculpture has rectangular faces. The face shown here is 9 feet long and 4 feet wide. Find each measure in simplest radical form. (*Hint:* Use the Pythagorean Theorem.)



5. $DC =$

6. $AD =$

7. $DB =$

8. $AE =$

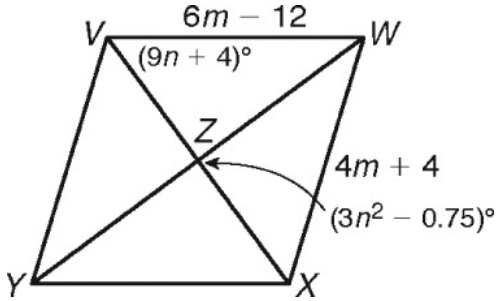
***VWXY* is a rhombus. Find each measure.**

9. $XY =$

10. $m\angle YVW =$

11. $m\angle VYX =$

12. $m\angle XYZ =$



In Exercises 13 and 14, find the lengths of the diagonals of rectangle *JKLM*.

13. $JL = 3x + 4$

$KM = 4x - 1$

14. $JL = 2x - 6$

$KM = \frac{3}{2}x + 1$

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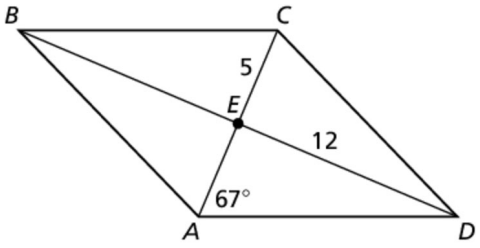
In Exercises 15–19, the diagonals of rhombus *ABCD* intersect at *E*. Given that $m\angle EAD = 67°$, $CE = 5$, and $DE = 12$, find the indicated measure.



15. $m\angle AED$

16. $m\angle ADE$

17. $m\angle BAE$

18. AE

19. BE

Given rhombus *ABCD*, find the measure of the indicated angle in degrees.

20. $m\angle A = 119°$. Find $m\angle B$.

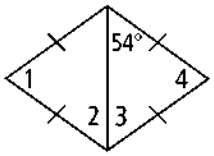
Find the length of the diagonals of rectangle *QRST* given the following information.

21. $QS = 4x + 6, RT = 6x - 4$

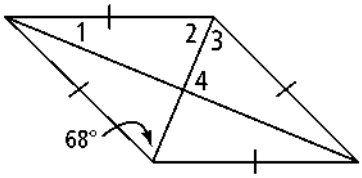
22. $QS = 9x + 12, RT = 11x - 10$

Find the measures of the numbered angles in each rhombus.

23.



24.



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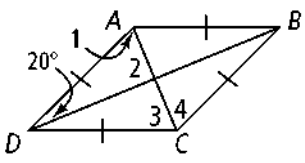
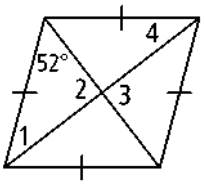


26.



In Exercises 27 – 30, find the lengths of the diagonals of rectangle *WXYZ*.

27. $WY = 6x - 7$
$XZ = 3x + 2$

28. $WY = 14x + 10$
$XZ = 11x + 22$

29. $WY = 24x - 8$
$XZ = -18x + 13$

30. $WY = 16x + 2$
$XZ = 36x - 6$

In Exercises 31– 36, the diagonals of rhombus *ABCD* intersect at *E*. Given that $m\angle BAC = 53°$, $DE = 8$, and $EC = 6$, find the indicated measure.

31. $m\angle DAC$

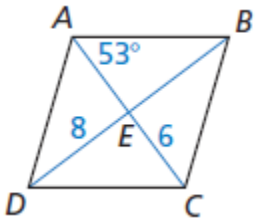
32. $m\angle AED$

33. $m\angle ADC$

34. DB

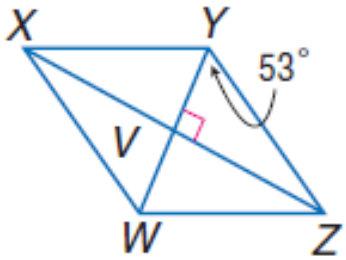
35. AE

36. AC



37. Use rhombus XYZW with $m\angle WYZ = 53°, VW = 3, XV = 2a - 2$, and $ZV = \frac{5a+1}{4}$

A. Find $m\angle YZV$



B. Find $m\angle XYW$

C. Find XZ

D. Find XW