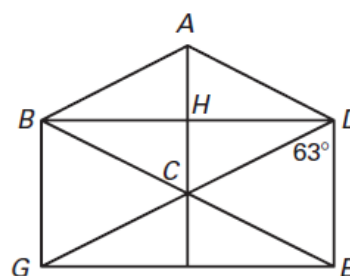


Decide whether the statement is *true* or *false*. Decide whether the converse is *true* or *false*. If both statements are *true*, write a biconditional statement.

- If a quadrilateral is a rectangle, then it is a parallelogram.
- If a quadrilateral is a parallelogram, then it is a rhombus.
- If a quadrilateral is a square, then it is a rhombus.
- If a quadrilateral is a rectangle, then it is a rhombus.
- If a rhombus is a square, then it is a rectangle.

In the diagram shown, $BDEG$ is a rectangle and $ABCD$ is a rhombus. Find the measure of the indicated angle.

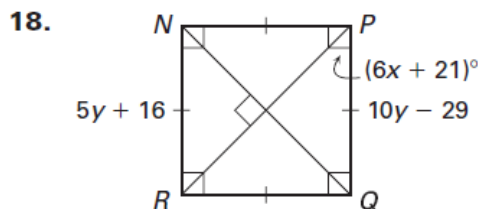
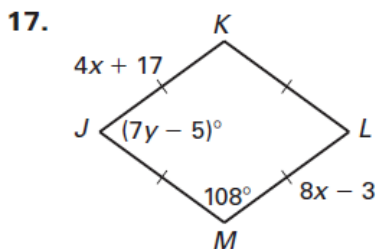
- | | |
|------------------|------------------|
| 6. $\angle GDB$ | 7. $\angle ABC$ |
| 8. $\angle DAB$ | 9. $\angle BCG$ |
| 10. $\angle GCE$ | 11. $\angle DEG$ |
| 12. $\angle AHB$ | 13. $\angle DGB$ |



Find the length or angle measure.

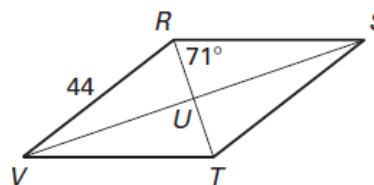
- | | | |
|--|---|---|
| 14. $WXYZ$ is a square.
$WX = 1 - 10x$
$YZ = 14 + 3x$
$XY = \underline{\quad? \quad}$ | 15. $WXYZ$ is a rhombus.
$m\angle X = 24(10 - x)^\circ$
$m\angle Z = 6(x + 15)^\circ$
$m\angle Y = \underline{\quad? \quad}$ | 16. $WXYZ$ is a rectangle.
Perimeter of $\triangle XYZ = 24$
$XZ = 13 - x$
$XY + YZ = 5x - 1$
$WY = \underline{\quad? \quad}$ |
|--|---|---|

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

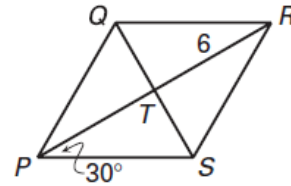


The diagonals of rhombus $RSTV$ intersect at U . Given that $m\angle URS = 71^\circ$ and $RV = 44$, find the indicated measure.

- | | |
|-------------------|-------------------|
| 19. $m\angle URV$ | 20. $m\angle RVT$ |
| 21. RT | 22. SU |

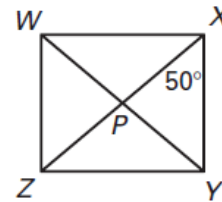


The diagonals of rhombus $PQRS$ intersect at T . Given that $m\angle RPS = 30^\circ$ and $RT = 6$, find the indicated measure.



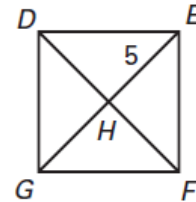
13. $m\angle QPR$ 14. $m\angle QTP$
15. RP 16. QT

The diagonals of rectangle $WXYZ$ intersect at P . Given that $m\angle YXZ = 50^\circ$ and $XZ = 12$, find the indicated measure.



17. $m\angle WXZ$ 18. $m\angle WPX$
19. PY 20. WX

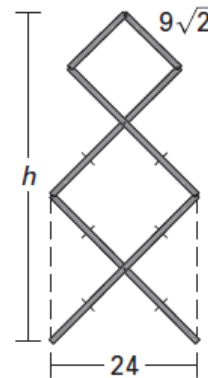
The diagonals of square $DEFG$ intersect at H . Given that $EH = 5$, find the indicated measure.



21. $m\angle GHF$ 22. $m\angle DGH$
23. HF 24. DE

25. **Windows** In preparation for a storm, a window is protected by nailing boards along its diagonals. The lengths of the boards are the same. Can you conclude that the window is square? *Explain.*

26. **Clothing** The side view of a wooden clothes dryer is shown at the right. Measurements shown are in inches.

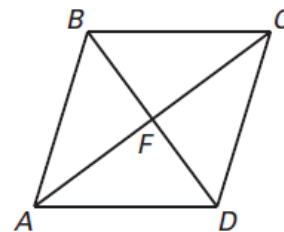


- a. The uppermost quadrilateral is a square. Classify the quadrilateral below the square. *Explain* your reasoning.
b. Find the height h of the clothes dryer.

27. **Proof** The diagonals of rhombus $ABCD$ form several triangles. Using a two-column proof, prove that $\triangle BFA \cong \triangle DFC$.

GIVEN: $ABCD$ is a rhombus.

PROVE: $\triangle BFA \cong \triangle DFC$



Practice Level C

1. true; false 2. false; true 3. true; false
4. false; false 5. true; true; A rhombus is a square if and only if it is a rectangle. 6. 27°
7. 54° 8. 126° 9. 54° 10. 126° 11. 90°
12. 90° 13. 63° 14. 11 15. 60° 16. 10
17. rhombus; All sides are \cong .; $x = 5, y = 11$
18. square; All sides are \cong and all \sphericalangle s are right \sphericalangle s.;
 $x = 4, y = 9$ 19. 71° 20. 38° 21. about 28.6
22. about 41.6 23. 34° 24. 112° 25. 16.5
26. about 18.5

Practice Level B

- $x = 27, y = 4$ 13. 30° 14. 90° 15. 12
16. $2\sqrt{3}$ 17. 40° 18. 100° 19. 6
20. about 9.2 21. 90° 22. 45° 23. 5
24. $5\sqrt{2}$ 25. No; The diagonals of all rectangles are congruent, so the window may not be square.
26. a. square; 4 congruent sides and 4 right angles b. 54 in.
27.

Statements	Reasons
1. $ABCD$ is a rhombus.	1. Given
2. $\angle ABF \cong \angle CDF$ $\angle BAF \cong \angle DCF$	2. Theorem 8.12
3. $\overline{BA} \cong \overline{DC}$	3. Definition of a rhombus.
4. $\triangle BFA \cong \triangle DFC$	4. ASA Cong. Postulate