

Name: _____

7.4 Practice Problems

Classify each statement as true or false.

1. Opposite sides of a rectangle must be parallel. _____
2. The diagonals of a rhombus must be perpendicular. _____
3. Consecutive angles of a rhombus are always complementary. _____
4. The diagonals of a rectangle are always perpendicular. _____
5. Opposite sides of a parallelogram must be congruent. _____
6. Each diagonal of a rectangle always bisects a pair of opposite angles. _____

For 7-9, remember when drawing a polygon the vertices must go in the same order as the name.

7. Given Rectangle ABCD, find the length of the diagonals given the following lengths.

$$AC = 4x + 3y, BD = 8x + y, AB = 6x + y, CD = 2y + 4.$$

Bonus, find the perimeter.

8. Given Rhombus WXYZ whose diagonals intersect at point A, find x and y given the following expressions for each angle measure. Angle WAZ = $2x + 3y$, angle XAY = $x + 6y$.

9. Given the perimeter of square GEOM is 48, find the length diagonal GO.

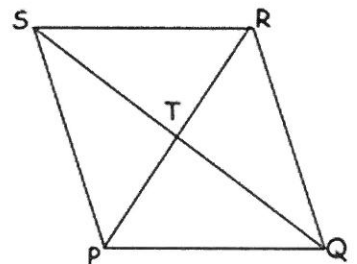
10. Use rhombus PQRS and the given information to find each value.

If $SQ = 24$, $RP = 10$, find SR .

If $m\angle PRS = 17$, find $m\angle QRS$.

Find $m\angle STR$.

If $SP = 4x - 3$ and $PQ = 18 + x$, find the value of x .

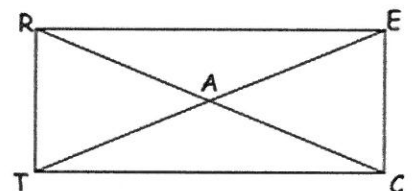


11. Use rectangle RECT and the given information to find each value.

$m\angle RCT = 30^\circ$, find $m\angle ETC$.

If $RC = 5x + 2$ and $AE = x + 14$, find the value of x .

If $m\angle EAC = 40^\circ$, find $m\angle AEC$.



12. Determine whether each set of coordinates is a parallelogram, rectangle, rhombus or a square. You must provide a reason for your choice.

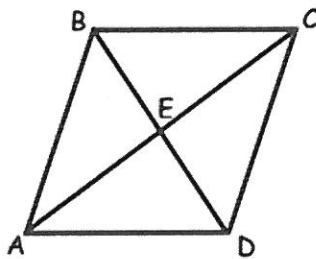
a) M(1, 5), N(6, 5), O(6, 10), P(1, 10)

b) W(5,4), X(3, -6), Y(0, -10), Z(2, 0)

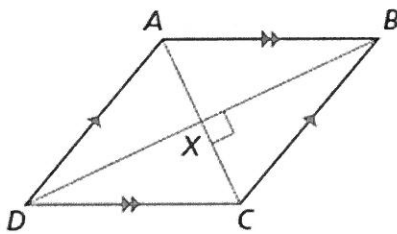
c) D(1, 10), E(-4, 0), F(7, 2), G(12, 12)

d) R(5, 6), E(7, 5), S(9, 9), T(7,10)

13. Given rhombus ABCD, $AB = 5x + y - 1$, $BC = 18$, $CD = 8x - 2y + 2$. Find x and y .



14.



Given \overline{ABCD} is a parallelogram.
 $\overline{AC} \perp \overline{BD}$

Prove \overline{ABCD} is a rhombus.

15. **PROOF** Write a proof in the style of your choice.

Given $\triangle XYZ \cong \triangle XWZ$, $\angle XYW \cong \angle ZWY$

Prove $WXYZ$ is a rhombus.

