

Geometry M217  
Chapter 6: 6-4  
Worksheet 1

Name \_\_\_\_\_

Teacher \_\_\_\_\_

**Fill out the table by putting an X for each quadrilateral that has the property listed to the left.**

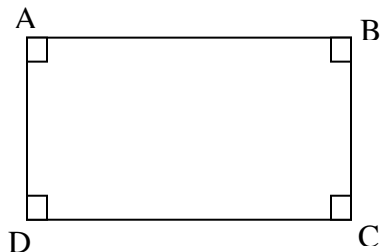
Property	Rectangle	Rhombus	Square
Both pairs of opposite sides are parallel			
Both pairs of opposite angles are congruent			
Diagonals bisect each other			
Both pairs of opposite sides are congruent			
Consecutive angles are supplementary			
Diagonals are perpendicular			
All sides are congruent			
All angles are congruent			
Diagonals are congruent			
Diagonals bisect both pairs of opposite angles			

**Use the table above to help you answer the following true or false questions. If the statement is false, then correct it or rewrite it so that it is true.**

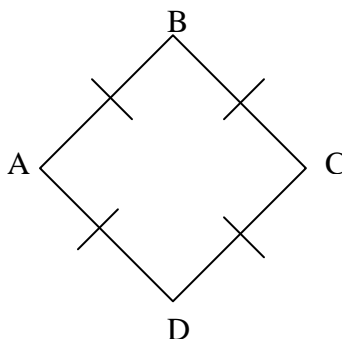
- All rectangles are squares. 1. T F
- All squares are rhombi. 2. T F
- If a quadrilateral is a rectangle and a rhombus, then it is a square. 3. T F
- If a quadrilateral has congruent diagonals then it must be a square. 4. T F
- All rectangles, rhombi, and squares are parallelograms. 5. T F
- A rhombus has four congruent angles. 6. T F
- If a quadrilateral has four congruent sides then it must be a square. 7. T F

**First identify what shape you are given. Then solve for the variable(s) in each quadrilateral below using the properties of parallelograms, rhombi, rectangles, and squares. Show equation used. You may need to draw in diagonals based on the information given.**

8.  $AB = 4(x+3)$ ;  $BC = 6 - (2 + y)$   
 $DC = 12(x-5)$ ;  $AD = 3y$



9.  $m\angle ABD = 3x + 27$ ;  
 $m\angle DBC = 9(x-1)$

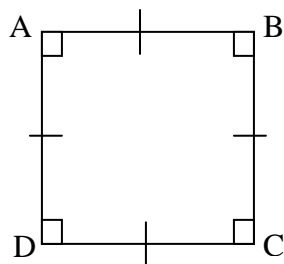


8.  $x =$  \_\_\_\_\_

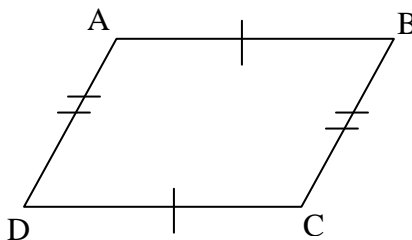
$y =$  \_\_\_\_\_

9.  $x =$  \_\_\_\_\_

10.  $m\angle CAB = 3x + 15$



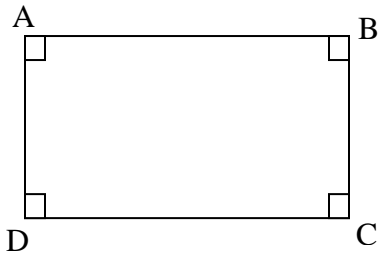
11.  $m\angle ABC = 17x + 45$ ;  
 $m\angle BCD = 8x + 10$



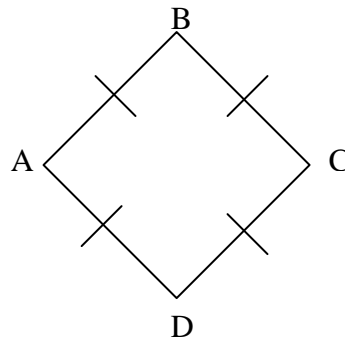
10.  $x =$  \_\_\_\_\_

11.  $x =$  \_\_\_\_\_

12.  $AC = 15y + 10$ ;  $BD = 18y - 2$



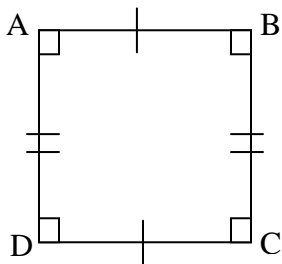
13.  $m\angle BCA = 4y + 5$ ;  
 $m\angle BCD = 6y + 30$



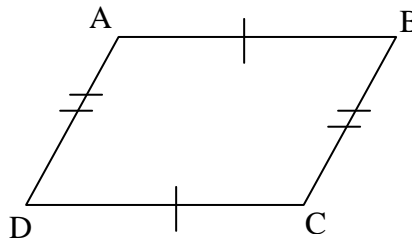
12.  $y = \underline{\hspace{2cm}}$

13.  $y = \underline{\hspace{2cm}}$

14.  $AD = 3x$ ;  $BC = 2y + 1$   
 $AC = 4x - 2$ ;  $DB = y + 6$



15. Let E be intersection of  $\overline{AC}$  and  $\overline{DB}$   
 $AE = 2x$ ;  $EC = y + 7$   
 $DE = x$ ;  $DB = 31 - 7y$



14.  $x = \underline{\hspace{2cm}}$

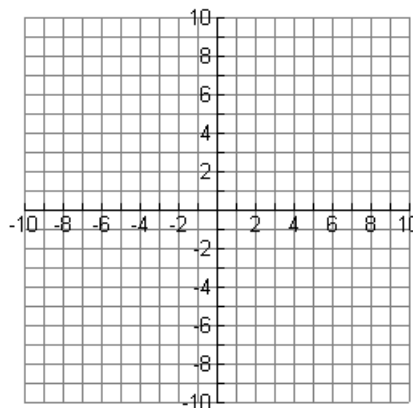
$y = \underline{\hspace{2cm}}$

15.  $x = \underline{\hspace{2cm}}$

$y = \underline{\hspace{2cm}}$

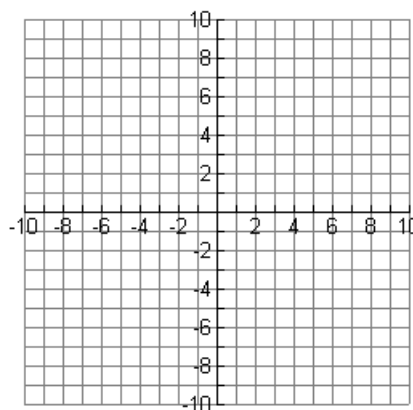
**Graph parallelogram PQRS. Determine if it is a rectangle, rhombus, or square using slopes (to show parallel and/or perpendicular) and distance formula (to show congruent length). Justify your answer using complete sentences.**

16. P (3, 5) Q (9, 3) R (7, -3) S (1, -1)



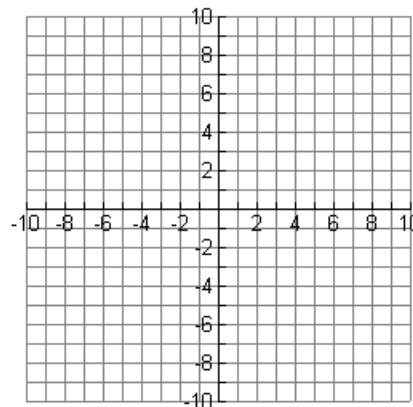
Parallelogram: \_\_\_\_\_

17. P (1, 7) Q (5, 9) R (8, 3) S (4, 1)



Parallelogram: \_\_\_\_\_

18. P (-3, 2) Q (-1, 6) R (1, 2) S (-1, -2)



Parallelogram: \_\_\_\_\_