Name: _____

6.4 ~ RECTANGLES, RHOMBI, & SQUARES

Past due on: _____ Period: _____

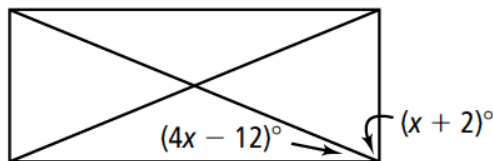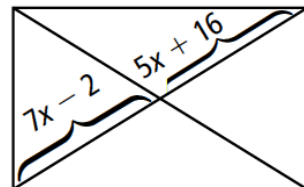## PROBLEMS 1 – 5: USE THE PROPERTIES OF RECTANGLES

Set up and solve an equation to find the value of x in each rectangle.
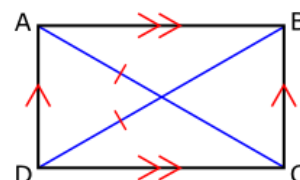
1. Find x.

$(4x - 12)°$ $(x + 2)°$

2. Find x.

$7x - 2$ $5x + 16$
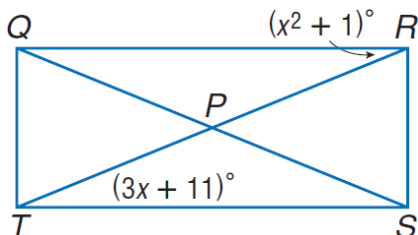
3. $ABCD$ is a rectangle. $AB = x + 1, BC = 4x, CD = y, \& AD = 3y$
   a. Set up and solve a system of equations to find the values of the variables.
   b. Find the area of $ABCD$.

A B D C

4. $QRST$ is a rectangle. Set up and solve a quadratic equation to find the value of x (that makes sense). Find $m\angle QTS$ and $m\angle QRP$.

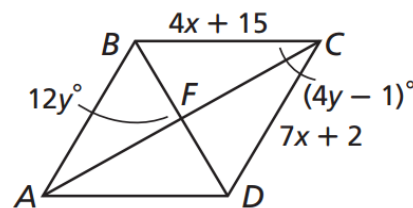Q $(x^2 + 1)°$ R P $(3x + 11)°$ T S

5. The area of the rectangle shown is 160 square meters. Set up and solve a quadratic equation that represents the area of the rectangle. What is its perimeter?
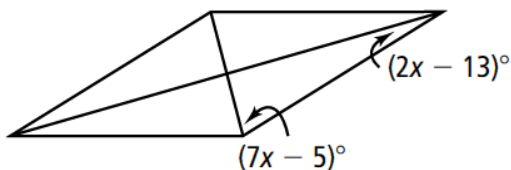
X x + 6
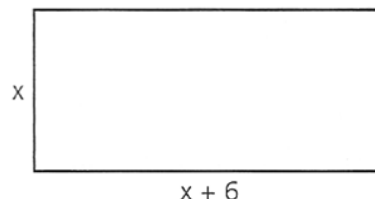
PROBLEMS 6 – 10: USE THE PROPERTIES OF RHOMBI

6. $ABCD$ is a rhombus.
   a. Set up and solve equations to find the values of x & y.
   b. Find the perimeter of $ABCD$.
   c. Find $m\angle BCD$.

$4x + 15$ B C $12y°$ F $(4y - 1)°$ $7x + 2$ A D

$$m\angle BFA = 12y \; \& \; m\angle BCA = 4y - 1$$

7. Use the properties of rhombi, involving the diagonals, to set up and solve an equation to find the value of x.

$(2x - 13)°$

$(7x - 5)°$

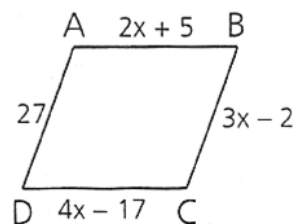8. Use the properties of rhombi, involving the diagonals, to set up and solve a quadratic equation to find the value of x (that makes sense).

$(3x^2 - 15)°$

$(x^2 + x)°$

9. *QRST* is a rhombus.
   a. Find $m\angle 1$ & $m\angle 2$.
   b. Set up and solve a system of equations to find the values of x & y.
   c. What is the area of *QRST*?

$3x + 2$

$x + 3$

$y + 1$

2

y

1

$53°$
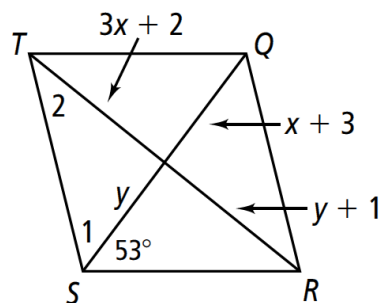
10. Given: $\overline{AB} \cong \overline{DC}$. Explain why *ABCD* is NOT a rhombus.

A $2x + 5$ B

27

$3x - 2$

D $4x - 17$ C

PROBLEMS 11 & 12: USE THE PROPERTIES OF SQUARES

Set up and solve an equation to find the value of x.

11. *LMNO* is a square.
    a. Set up and solve an equation to find the value of x.
    b. What is the perimeter of *LMNO*?
    c. What is its area?

L $x + 7$ M

$3x + 1$

O   N

12. The figure shown is a square.
    a. Set up and solve an equation to find the value of x.
    b. If $m\angle 2 = y^2 - 31$, find the value of y that makes sense.

$(5x + 10)°$

2

$(6x + 3)°$

Chapter 6: Quadrilaterals