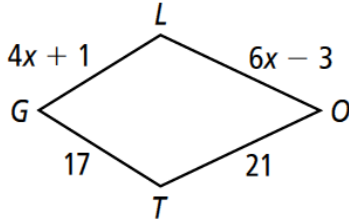Name: _____

6.5 ~ KITES & TRAPEZOIDS

Past due on: _____ Period: _____
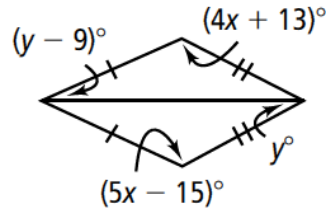
SHOW ALL WORK ON A SEPARATE SHEET OF PAPER.

PROBLEMS 1 – 7: USE THE PROPERTIES OF KITES

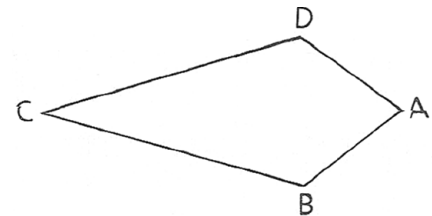Set up and solve an equation to find the value of the variable(s) in each kite.

1. Find x.

$4x + 1$ $6x - 3$
17 21

2. Find x & y.

$(y - 9)°$ $(4x + 13)°$
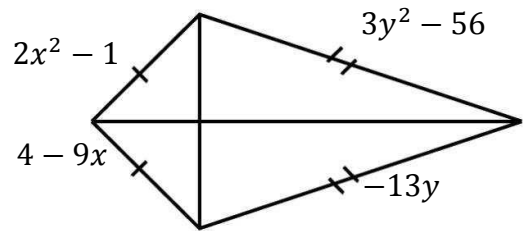$(5x - 15)°$ $y°$

3. Given: $ABCD$ is a kite.
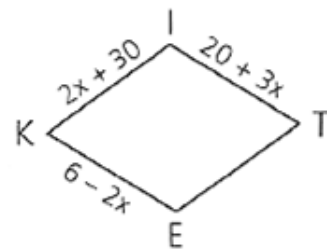
$AB = x + 3$
$BC = x + 4$
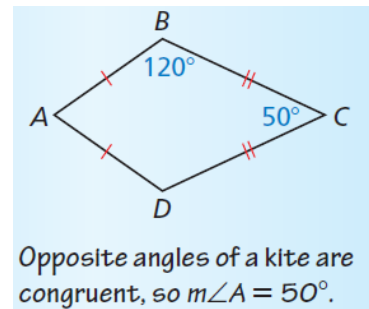$CD = 2x - 1$
$AD = 3x - y$

Find: a. x & y
b. Perimeter of $ABCD$

4. The figure shown is a kite.
a. Set up and solve two quadratic equations to find the values of x and y.
b. Find the perimeter.

$2x^2 - 1$ $3y^2 - 56$
$4 - 9x$ $-13y$

5. An author wrote a problem involving kite *KITE* but forgot to say which pairs of sides were congruent.

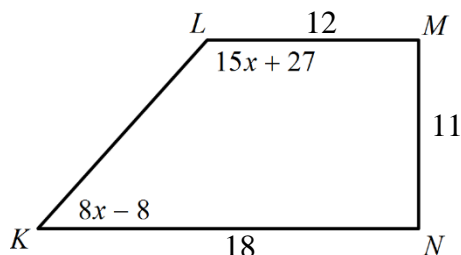Work the problem twice to see which pairs of sides are congruent.

$2x + 30$ $20 + 3x$
K T
$6 - 2x$
E

6. Describe and correct the error made in finding the measure of $\angle A$.

B
$120°$
A $50°$ C
D

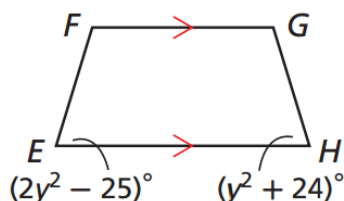Opposite angles of a kite are congruent, so $m\angle A = 50°$.

7. Ali created a kite out of two sticks and some fabric. The sticks were 10 inches and 15 inches long. She tied the sticks together so they were perpendicular and attached the fabric. What is the area of the kite Ali created?

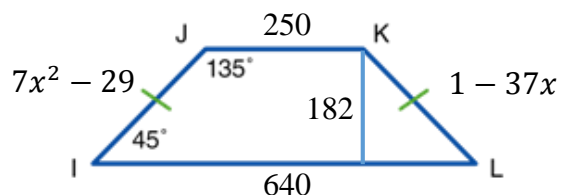## PROBLEMS 8 – 14: USE THE PROPERTIES OF TRAPEZOIDS & ISOSCELES TRAPEZOIDS

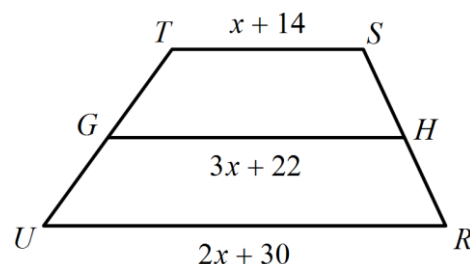8. Set up and solve an equation to find the value of x. Then find $m\angle K$, $m\angle L$ AND the area of KLMN.

L $\qquad$ 12 $\qquad$ M
15x + 27
11
8x − 8
K
18
N

9. Set up and solve a quadratic equation to find the value of c. Then find the length of the midsegment.

$c^2 + 6$
$4c$
$c^2 + 2$

10. EFGH is an isosceles trapezoid
    a. Set up and solve a quadratic equation to find the value of y.
    b. Find $m\angle F$ & $m\angle H$.

F $\qquad$ G
E $\qquad$ H
$(2y^2 − 25)°$ $\qquad$ $(y^2 + 24)°$

11. EFGH is an isosceles trapezoid
    a. Set up and solve an equation to find the value of x.
    b. Find EJ, JG, & HJ

$EJ = x + 5$
$JG = 2x − 1$
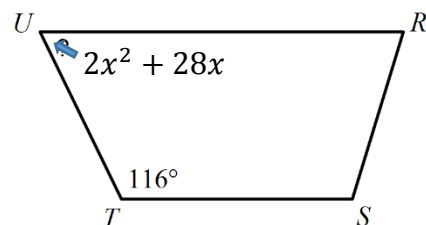$HF = 13$

H $\qquad$ G
J
E $\qquad$ F

12. IJKL is an isosceles trapezoid
    a. Set up and solve a quadratic equation to find the value of x.
    b. Find the perimeter of the trapezoid.
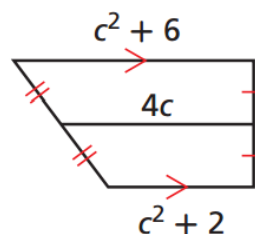   c. Find the area of the trapezoid.

J $\qquad$ 250 $\qquad$ K
$7x^2 − 29$ $\quad$ 135° $\qquad$ $1 − 37x$
182
45°
I
640
L

13. Given: trapezoid RSTU
    a. Set up and solve an equation to find the value of x
    b. Find GH
    c. If $\angle U = 45°$ & $\angle T = 3y^2 − 12y$, set up and solve a quadratic equation to find the value of y (that makes sense).

T $\qquad$ x + 14 $\qquad$ S
G $\qquad$ H
$3x + 22$
U
$2x + 30$
R

14. Given: trapezoid RSTU
    a. Find $m\angle U$
    b. Set up and solve a quadratic equation to find the value of x (that makes sense).

U $\qquad$ R
$2x^2 + 28x$
116°
T $\qquad$ S

Chapter 6: Quadrilaterals