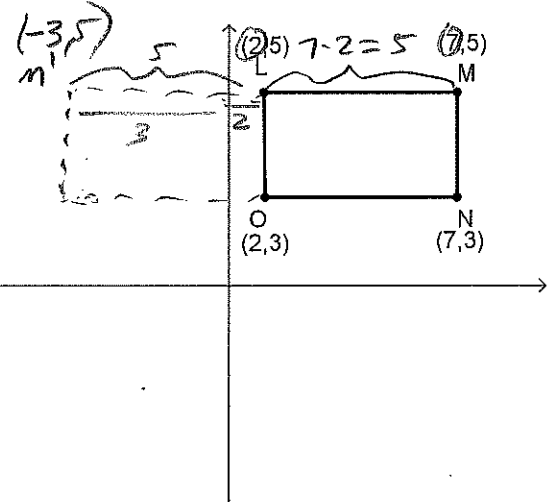Use the figure on the right for problems 1-3:

1. If $\angle 5 \cong \angle 6$, which lines must be parallel? $\underline{AB \parallel CD}$

2. If ABCD is a parallelogram, then $\angle BAD$
must be congruent to which angle?
$\underline{\angle BCD}$
(opp. $\angle$'s $\cong$)

3. If ABCD is a parallelogram, then $\overline{BC}$
must be congruent to which side?
$\underline{\overline{AD}}$
(opp. sides $\cong$)

4. In the figure on the right, if rectangle LMNO is
'folded over' line $\overline{LO}$, find the coordinates of
the new location of point M. $(-3, 5)$

(-3,5)
n
5
(2,5) 7-2=5 (7,5)
L   M
3   2
O   N
(2,3)   (7,3)
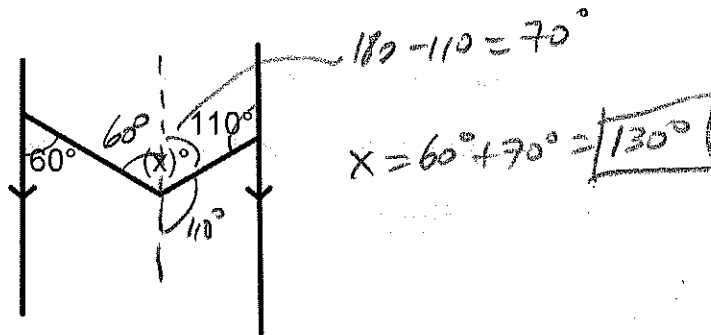
In problems 5-8 below, write True or False:

5. The diagonals of a rhombus are perpendicular bisectors of each other. _true_

6. A rhombus is a kite. _true_

7. A kite is a rhombus. _false_

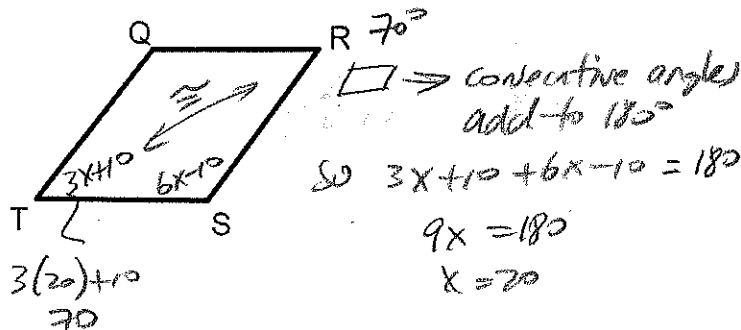8. The diagonals of a rectangle are equal. _true_

9. Find x:

60° 60° (x)° 110°
110°

$180 - 110 = 70°$
$x = 60° + 70° = \boxed{130°}$

10. Given: QRST is a parallelogram.
$m\angle T = 3x + 10$
$m\angle S = 6x - 10$

Find $m\angle R = \boxed{70°}$

Q   R 70°
3x+10° 6x-10°
T   S

3(20)+10
70

$\square \Rightarrow$ consecutive angles
add to 180°

So $3x + 10 + 6x - 10 = 180$
$9x = 180$
$x = 20$

For problems 11 and 12, QRST is a rectangle with perimeter of 40.
The length of $\overline{QR}$ is 3 times the length of $\overline{RS}$.

$3(5)=15$
$3x$

Q ————— R

x x 5

T $3x$ S
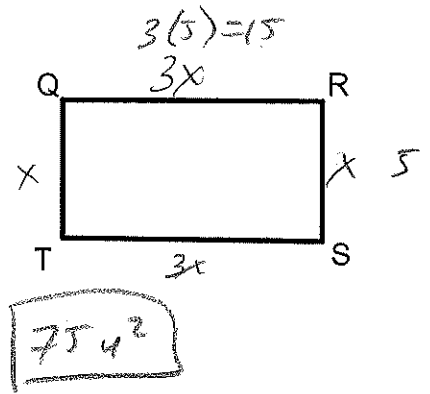
11. Find RS

$x+3x+x+x= 40$

$\dfrac{8x=40}{8\quad 8}$

$x=5$

$RS=x$

$RS=\boxed{5}$

12. Find the area of QRST

$15 \cdot 5$
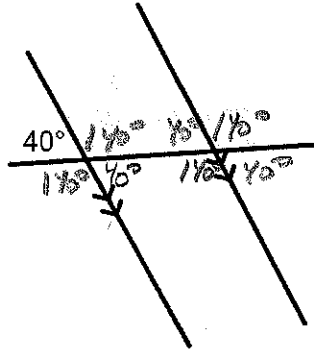
$\dfrac{\overset{4}{45}}{5}$

75

$\boxed{75\,y^2}$

13. Fill in all missing angles:

$40°$ /$140°$ /$140°$ /$140°$
/$140°$ /$40°$ /$140°$ /$40°$

14. What is the most descriptive name for each quadrilateral below?

one pair
opp sides
≅ and ||

___parallelogram___

one diag.
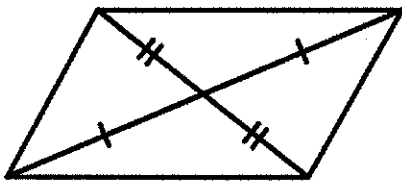⊥ bis
of other

___kite___

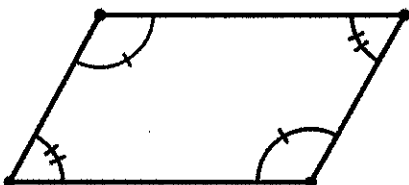8   10

___trapezoid___

Refer to the following figures for problems 15 and 16. Tell why each figure is a parallelogram:

15.

Reason: __Diagonals bisect__
__each other__

16.
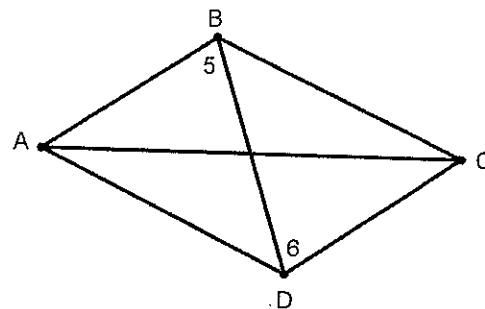
Reason: __both pairs of opposite__
__angles are congruent__

Name _____

Period _____

Use the figure on the right for problems 1-3:

1. If $\angle 5 \cong \angle 6$, which lines must be parallel? _____

2. If ABCD is a parallelogram, then $\angle BAD$
   must be congruent to which angle?   _____

3. If ABCD is a parallelogram, then $\overline{BC}$
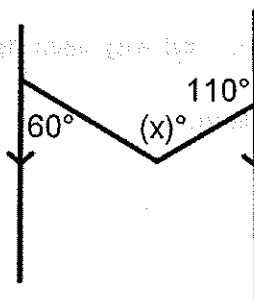   must be congruent to which side?   _____

4. In the figure on the right, if rectangle LMNO is
   'folded over' line $\overline{LO}$, find the coordinates of
   the new location of point M.

   _____
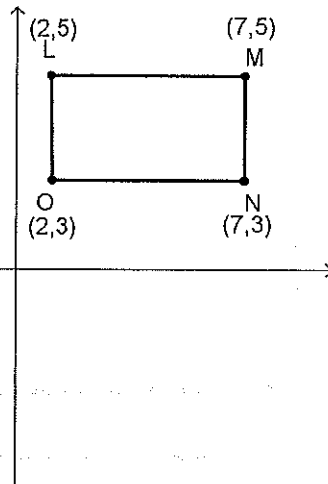
In problems 5-8 below, write True or False:
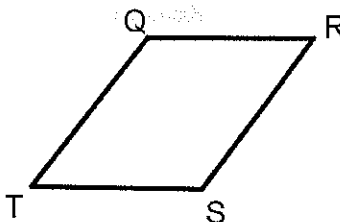
5. The diagonals of a rhombus are perpendicular bisectors of each other. _____

6. A rhombus is a kite.   _____

7. A kite is a rhombus.   _____

8. The diagonals of a rectangle are equal. _____

9. Find x:
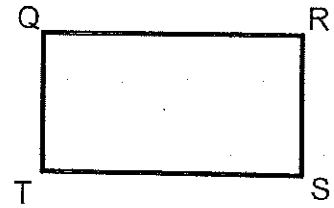
   60°   (x)°   110°

10. Given: QRST is a parallelogram.
        $m\angle T = 3x + 10$
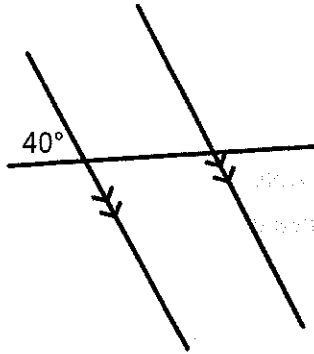 $m\angle S = 6x - 10$

    Find $m\angle R$

For problems 11 and 12, QRST is a rectangle with perimeter of 40.
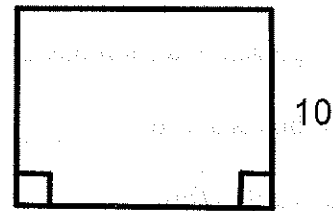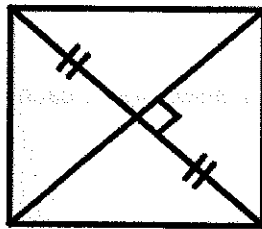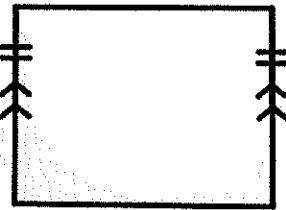The length of $\overline{QR}$ is 3 times the length of $\overline{RS}$.

11. Find RS

12. Find the area of QRST
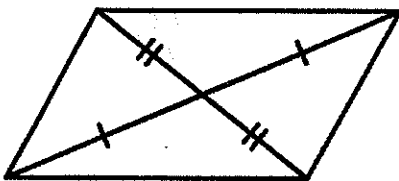
13. Fill in all missing angles:

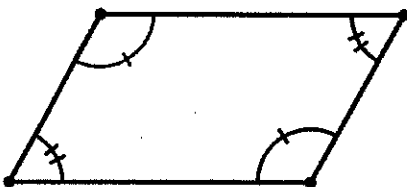14. What is the most descriptive name for each quadrilateral below?

8   10

_____   _____   _____

Refer to the following figures for problems 15 and 16. Tell why each figure is a parallelogram:

15.

Reason: _____

_____

16.

Reason: _____

_____