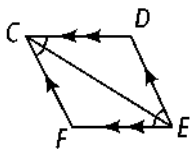
5.5 Practice

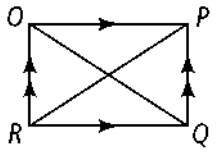
Can you conclude that the parallelogram is a *rhombus,* a *rectangle,* or a *square?* Explain.

1.



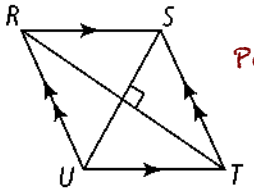
Rhombus: Diag. Bisects pair of opp. angles

2.



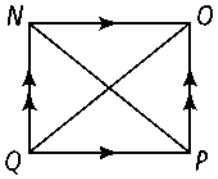
No. Opp sides parallel. That's it. Just a parallelogram.

3.



Rhombus. Parallelogram w/ diagonals perpendicular

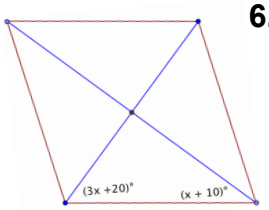
4. $\overline{NP} \cong \overline{OQ}$



Rectangle. Parallelogram w/ diagonals congruent

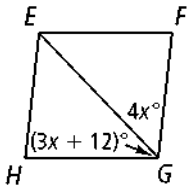
For what value of *x* is the figure the given special parallelogram?

5. rhombus



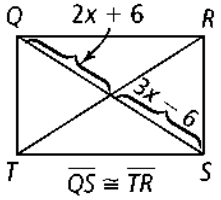
$3x + 20 + x + 10 + 90 = 180$
$4x + 120 = 180$
$4x = 60$
$15 = x$

6. rhombus



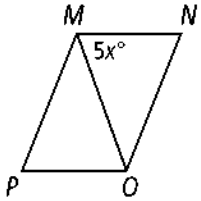
$4x = 3x + 12$
$x = 12$

7. rectangle



$2x + 6 = 3x - 6$
$12 = x$

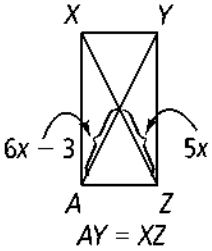
8.



$m\angle PMN = 110$

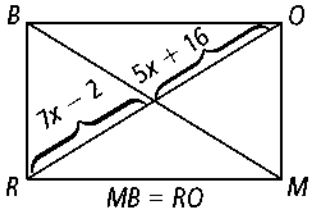
$5x = 110/2$
$5x = 55$
$x = 11$

9.



$6x - 3 = 5x$
$x = 3$

10.



$7x - 2 = 5x + 16$
$2x = 18$
$x = 9$

For Exercises 11–14, determine whether the parallelogram is a *rhombus,* a *rectangle,* or a *square.* Give the most precise description in each case.

11. A parallelogram has perpendicular diagonals and angle measures of 45, 135, 45, and 135.

Rhombus: Perpendicular diagonals

12. A parallelogram has perpendicular and congruent diagonals.

Square

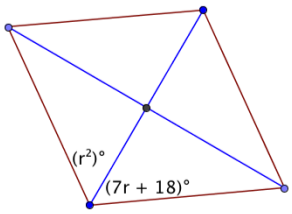
13. A parallelogram has perpendicular diagonals and angle measures that are all 90.

Square: Perpendicular diagonals (rhombus) with right angles (rect)

14. A parallelogram has congruent diagonals.

Rectangles

15. For what value of *r* is the parallelogram a rhombus?



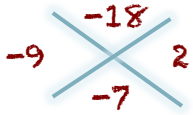
$r^2 = 7r + 18$

$-7x\ -18 \mid -7x\ -18$

$r^2 - 7r - 18 = 0$

$(r - 9)(r + 2) = 0$

$r = 9$ OR $r = -2$



Algebra Review

Solve each equation for x!

1. $-3x - 3 = -3(x - 10)$

2. $0.5(4x - 2) - 2 = 1.5x$

Multiply!

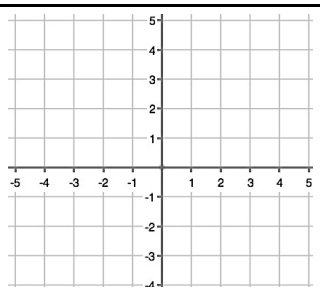
3. $(2x + 3)(x - 7)$

Factor!

4. $2x^2 - 3x + 1$

5. Graph the equation:

$y = 0$



6. Graph the equation:

$2y = 10 - 4x$