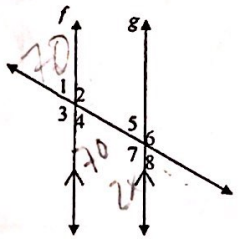
Properties of Parallel Lines

Name: _____

Block: _____ Date: _____

Use the diagram below for exercises 1-4



1. Identify four pairs of congruent angles. (exclude vertical angle pairs)
   ∠1≅8, ∠2≅7, ∠5≅4, ∠6≅3

2. Identify two pairs of supplementary angles. (exclude linear pairs)
   ∠2≅5, ∠4≅7

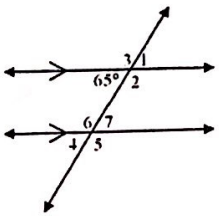
3. If $m\angle 1 = 70°$, what is $m\angle 8$?
   70°

4. If $m\angle 4 = 70°$ and $m\angle 7 = 2x$ what is the value of x?
   $70 + 2x = 180 \rightarrow 2x = 110$, $x = 55$

5. How are the Alternate Interior Angle Theorem and Alternate Exterior Angle Theorem alike? How are they different?
   Both are congruent, but they are in different locations

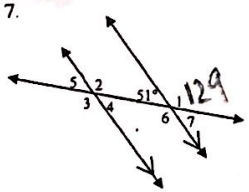
Find the measure of all the numbered angles.

6.



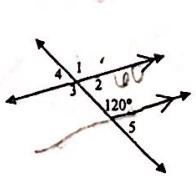
$m\angle 1 =$ 65
$m\angle 2 =$ 115
$m\angle 3 =$ 115
$m\angle 4 =$ 65
$m\angle 5 =$ 115
$m\angle 6 =$ 115
$m\angle 7 =$ 65

7.

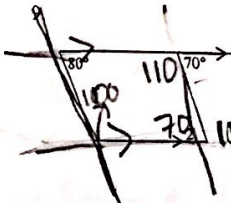


$m\angle 1 =$ 129
$m\angle 2 =$ 129
$m\angle 3 =$ 129
$m\angle 4 =$ 51
$m\angle 5 =$ 51
$m\angle 6 =$ 129
$m\angle 7 =$ 51

8.



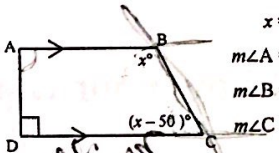
$m\angle 1 =$ 120
$m\angle 2 =$ 60
$m\angle 3 =$ 120
$m\angle 4 =$ 60
$m\angle 5 =$ 60



$m\angle 1 =$ 100
$m\angle 2 =$ 70

Find the value of x. Then find the measure of each labeled angle. Be sure to show work!

10.

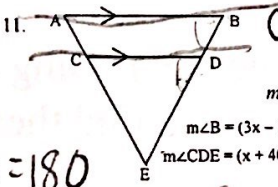


Consec. interior

$x =$ 115
$m\angle A =$ 90
$m\angle B =$ 115
$m\angle C =$ 65

$x + x - 50 = 180$
$2x - 50 = 180$
$2x = 230$

11.



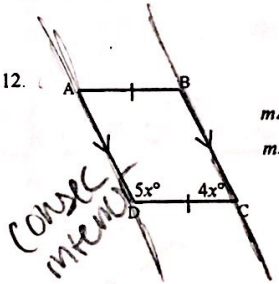
$m\angle B = (3x - 10)°$
$m\angle CDE = (x + 40)°$

Corresponding

$x =$ 25
$m\angle B =$ 65
$m\angle CDE =$ 65

$3x - 10 = x + 40$
$2x = 50$ $x = 25$

12.

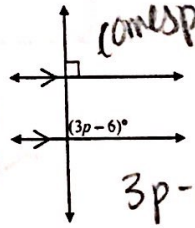


Consec. interior

$x =$ 20
$m\angle D =$ 100
$m\angle C =$ 80

$5x + 4x = 180$
$9x = 180$

13. Solve for p

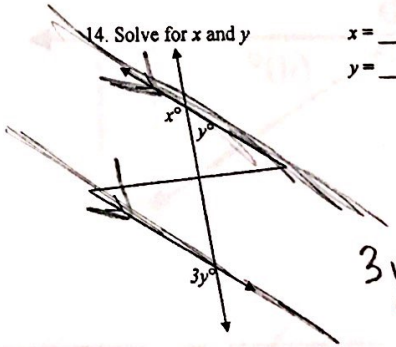


Corresponding

$p =$ 32

$3p - 6 = 90$
$3p = 96$

14. Solve for x and y



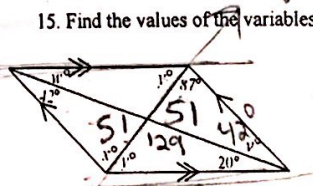
$x =$ 135
$y =$ 45

$3y = x \rightarrow$ corresponding

$x + y = 180$

$3y + y = 180$
$4y = 180$
$y = 45$

15. Find the values of the variables



$v =$ 420
$w =$ 200
$x =$ 570
$y =$ 31