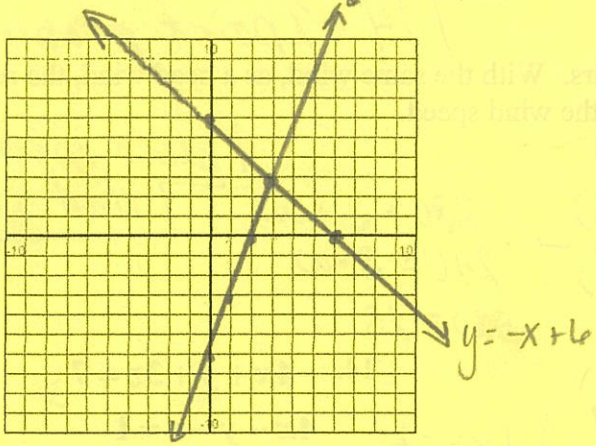
10-1, 10-2, 10-8, and 10-9 Review Worksheet

Name_____

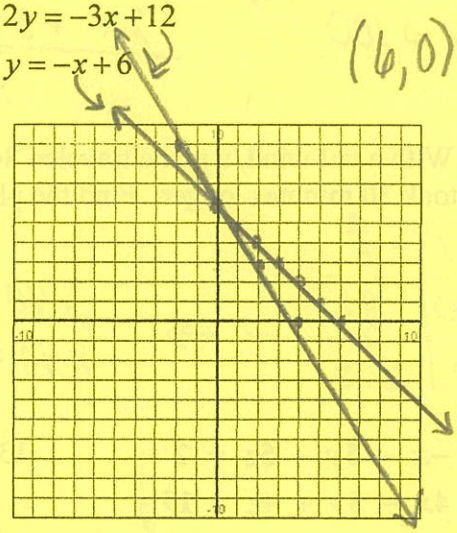
Period_____

Solve the System by Graphing

1. $3x - y = 6$
   $x + y = 6$



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



Solve the System and State the type of System. (Consistent and independent, consistent and dependent, or inconsistent)

3. $2x - 6y = 10$
   $-3x + 9y = -15$

$x - 3y = 5$
$-x + 3y = -5$ $\quad 3y = x - 5$
$0 = 0$
∞ $(x, \frac{1}{3}x - \frac{5}{3})$ cons. dep

4. $6x + 3y = 15$
   $4x - 3y = 15$
   $(2x + y = 5)\,3$

$10x = 30 \quad x = 3$
$6 + y = 5$
$y = -1$
$(3, -1)$ cons. indep

5. $9x - 12y = 24$
   $(3x - 4y = 8)\,3$
   $-18x + 24y = -80$
   $-9x + 12y = -40$

$0 = -16$
$\emptyset$ inconsistent

6. $2x = y + 6$
   $x = 6 - y$

$x = 6 - 2$
$x = 4$
$2(6 - y) = y + 6$
$12 - 2y = y + 6$
$6 = 3y$
$2 = y$
$(4,2)$ cons. indep

7. $(3x - 2y = -9)\,5$
   $(4x + 5y = 11)\,2$

$15x - 10y = -45$
$8x + 10y = 22$
$23x = -23$
$x = -1$
$-3 - 2y = -9$
$-2y = -6$
$y = 3$
$(-1,3)$ cons. indep

8. $x^2 + y^2 = 25$
   $y = 2x$

$x^2 + 4x^2 = 25$
$5x^2 = 25 \quad x^2 = 5$
$x = \pm\sqrt{5} \quad y = \pm 2\sqrt{5}$
$(\sqrt{5}, 2\sqrt{5})(-\sqrt{5}, -2\sqrt{5})$

9. If 8 pens and 7 pencils cost \$3.37 while 5 pens and 11 pencils cost \$3.10, how much does each pen and pencil cost?

$-5(8p + 7l = 3.37)$
$8(5p + 11l = 3.10)$
$\rightarrow$
$-40p - 35l = -16.85$
$40p + 88l = 24.80$
$53l = 7.95$
$l = 15¢$

$8p + 1.05 = 3.37$
$8p = 2.32$
$p = 29¢$

15¢ pencils, 29¢ pens

10. An algebra test contains 38 questions. Some of the problems are worth 2 points each. The rest of the problems are worth 3 points. A perfect score is worth 100 points. How many problems are worth 2 points?

$X + Y = 38$
$2X + 3Y = 100$ → $-2X - 2Y = -76$, $2X + 3Y = 100$, $Y = 24$

$X + 24 = 38$, $X = 14$

14 - 2 point problems

11. With a tail wind, a plane traveled 840 miles in 3 hours. With the same wind, as a head wind, the return trip took 30 minutes longer. Find the plane's speed and the wind speed.

$d = r \cdot t$

840	$s+w$	3hr
840	$s-w$	3.5

$840 = 3(s+w)$, $840 = 3.5(s-w)$ → $280 = s+w$, $240 = s-w$, $520 = 2s$

plane speed 260 m/hr, wind 20 m/hr

12. $-x - 5y - 5z = 2$
$4x - 5y + 4z = 19$
$x + 5y - z = -20$

$-6z = -18$, $z = 3$
$-4x - 20y - 20z = 8$
$-25y - 16z = 27$
$-25y - 48 = 27$
$-25y = 75$
$y = -3$
$x - 15 - 3 = -20$, $x - 18 = -20$, $x = -2$

(-2, -3, 3)

13. $4x + y = -3$
$x - 2y + 5z = 7$
$2x + y - 5z = -11$

$7x = -7$, $x = -1$
$3x - y = -4$
$-3 - y = -4$
$-y = -1$, $y = 1$
$-1 - 2 + 5z = 7$
$-3 + 5z = 7$
$5z = 10$
$z = 2$

(-1, -1, 2)

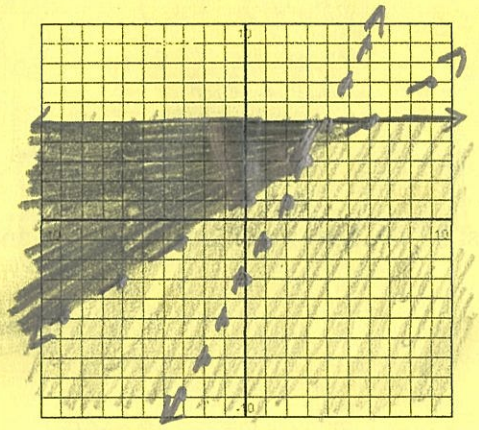
14. $-4x + y + 3z = 7$
$4x - y - z = 1$
$y + z = 7$

$2z = 8$, $z = 4$
$y + 4 = 7$, $y = 3$
$4x - 3 - 4 = 1$
$4x - 7 = 1$
$4x = 8$
$x = 2$

(2, 3, 4)

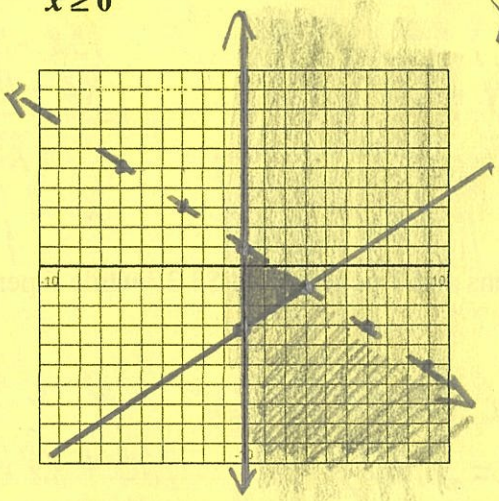
Graph the system of inequalities. If bounded, state the vertices. If unbounded, simply state unbounded.

15. $y > 2x - 3$
$3y > 2x + 3$ → $y > \frac{2}{3}x + 1$
$y \le 5$



unbounded

16. $2x + 3y < 3$
$2x - 3y \le 9$ → $3y < -2x + 3$, $y < -\frac{2}{3} + 1$, $-3y \le -2x + 9$, $y \ge \frac{2}{3}x - 3$
$x \ge 0$



bounded (0, 1)(0, -3)(3, -1)