INTERMEDIATE ALGEBRA **TEST 2** 95/100 Excellent! NAME: Antoinette Durden

No books and no notes. **Be sure to set up each problem before evaluation. Show all work** in the space provided for full credit.

1. Solve the following system of linear equations by elimination and give the solution set. Is the system consistent or inconsistent? Are the equations independent or dependent? (16 points)

$4x-y=5$
$-5x+3y=-1$

$4x-y=5 = 3(4x-y=5) = 12x-3y=15$

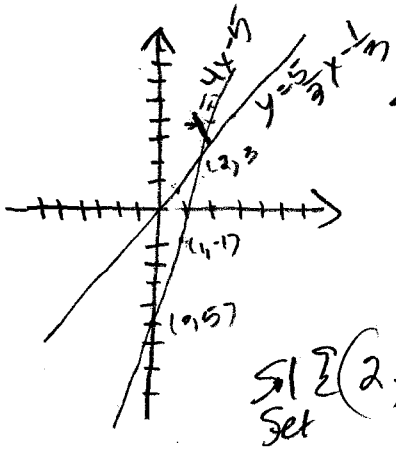
$12x-3y=15$
$-5x+3y=-1$
$7x=14$
$x=2$

x	y
0	5
1	1
2	$\frac{1}{3}$

x	y
0	$\frac{1}{3}$
3	4

$4(2)-y=5$
$8-y=5$
$-y=-3$
$y=3$

$-y=-4x+5$
$y=4x-5$
$3y=5x-1$
$y=\frac{5}{3}x-\frac{1}{3}$



system is consistent
equations are independent

Sol Set $\{(2,3)\}$

2. Solve the following system of linear equations and give the solution set. Are the equations independent or dependent? (14 points)

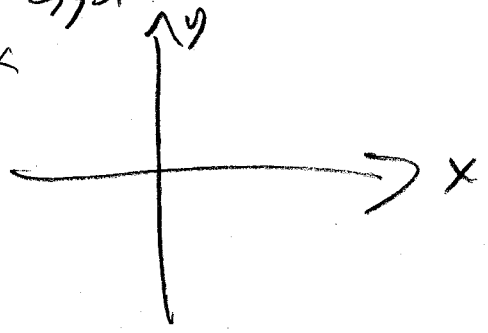
$-2x+3y=4$
$8x-12y=-16$

$4(-2x+3y)=4(4) = -8x+12y=16$

system is inconsistent

No Sol

$-8x+12y=16$
$8x-12y=-16$
$0=0$ ✓ True



-6

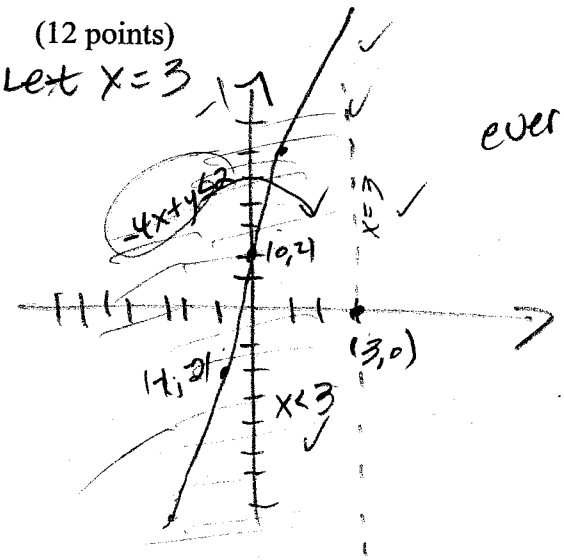
3. Graph the compound inequality. Label the points, lines and inequalities involved. Be sure to shade the compound inequality region.

$-4x+y\le 2$ or $x<3$ (12 points)

Let $-4x+y=2$
$y=4x+2$

x	y
0	2
1	6
-1	-2

Let $x=3$



everywhere shaded

Factor each polynomial.

4. a) $125x^3 - 27y^3$ (8 points)

$(5x)^3 - (3y)^3$

$(5x-3y)(25x^2+15xy+9y^2)$

b) $4m^2 - 9$ (6 points)

$(2m)^2 - (3)^2$

$(2m-3)(2m+3)$

5. a) $3k^2 + 8k + 5$ (6 points)

$(3k+5)(k+1)$

b) $4a^2 - 4a + 1$ (6 points)

$(2a)^2 - (1)^2$

$=(2a-1)(2a-1)$

$=(2a-1)^2$

6. $(12p+4q)+(3pq^2+q^3)$ (10 points)

$=4(3p+q)+q^2(3p+q)$

$=(3p+q)(4+q^2)$

$2^2 + q^2$

$=(3p+q)(2+q)(2+q)$ -1

-1

7. Solve the following equation and give the solution set: (12 points)

$3x^3 - 9x^2 + 6x = 0$

$3x(x^2-3x+2)=0$

$3x(x-2)(x-1)=0$

$3x=0$ or $x-2=0$ or $x-1=0$

$x=0$ $x=2$ $x=1$

$\{0,1,2\}$

Sol set: $\{x \mid x=0 \text{ or } x=1 \text{ or } x=2\}$

8. Evaluate the following:

a) $(2x-5)(x+4)$ (6 points)

$=2x^2-8x-5x-20$

$=2x^2-13x-20$

b) $(3x-7)^2$ (6 points)

$3x^2-42x+49$