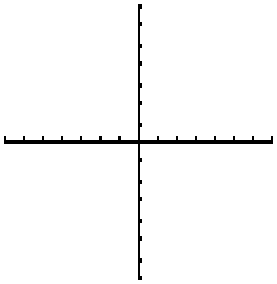
BASIC ALGEBRA EXAM 4 GR* NAME _____

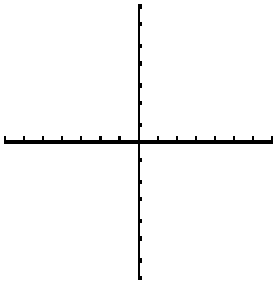
SHOW ALL WORK ON THIS TEST OR ON SEPARATE PAPER.

In 1 - 8, graph the equations and inequalities. (Show work for partial credit!)

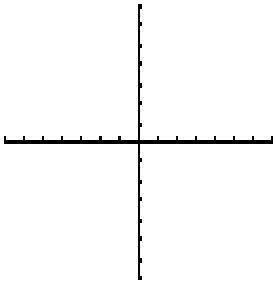
1. $y = -2x + 1$



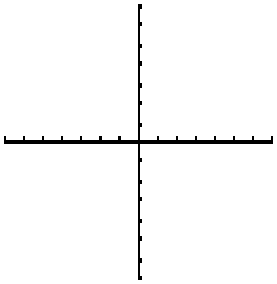
2. $y = 2x$



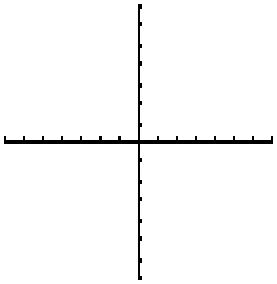
3. $y = \frac{3}{4}x + 2$



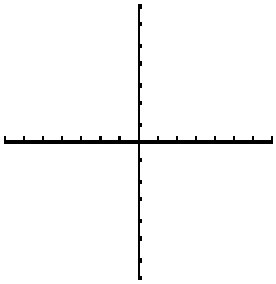
4. $3x - 2y = -6$



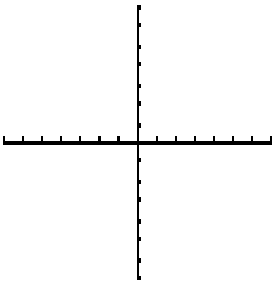
5. $4y + x = 8$



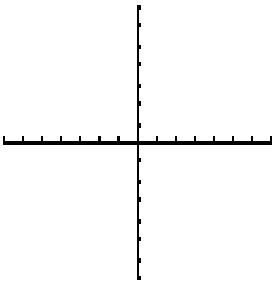
6. $x = 2$



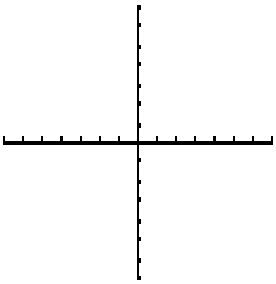
7. $y < -2x - 4$



8. $-3x + 2y \geq -12$



9. $4x - 3y < -12$



BASIC ALGEBRA EXAM 4 GR* NAME _____

In 10 - 15, find the slope, the x-intercept, and the y-intercept as indicated—read carefully.

10. $y = 6 - 3x$

slope = _____

Y-int = _____

11. $3x - 2y = 6$

X-int = _____

Y-int = _____

12. $y = 6$

slope = _____

Y-int = _____

13. $x = 6$

slope = _____

x -int = _____

14. $y = 2x + 4$

slope = _____

X-int = _____

Y-int = _____

15. $2x - 3y = 6$

slope = _____

X-int = _____

Y-int = _____

In 16 - 19, find the slope of a line

16. between (–1, –3) and (2, 9)

17. between (–2, 5) and (4, –3)

18. between (–2, 0) and (0, 3)

19a) parallel to a line whose slope is 2

b) perpendicular to a line whose slope is 2.

BASIC ALGEBRA EXAM 4 GR* NAME _____

In 20 - 25 solve the systems of equations. Show all work by algebra method of your choice.

20. $-2x + y = 8$
$3x - y = 2$

21. $-3x + 5y = 10$
$x - y = -6$

22. $3x + 5y = 2$
$2x + 3y = -4$

23. $x = 5y + 24$
$3x - y = 2$

24. $x - 2y = -2$
$4x - 8y = -8$

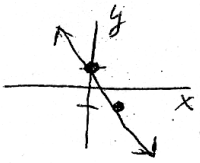
25. $5y - 4x = 22$
$x = -4y + 5$

BASIC ALGEBRA EXAM 4GR* Solutions

1. $y = -2x + 1$

y int = 1

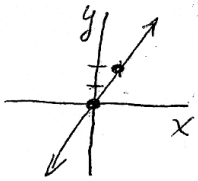
$m = \frac{-2}{1}$



2. $y = 2x$

y int = 0

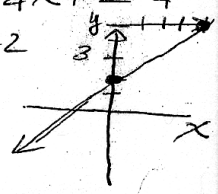
$m = \frac{2}{1}$



3. $y = \frac{3}{4}x + 2$

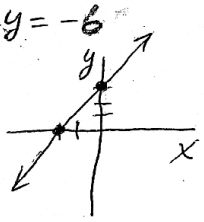
y int = 2

$m = \frac{3}{4}$



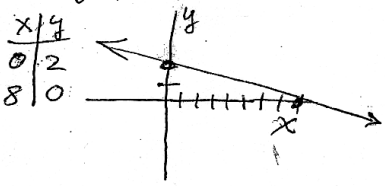
4. $3x - 2y = -6$

x	y
0	3
-2	0



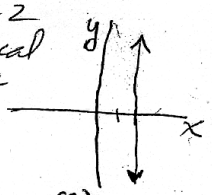
5. $4y + x = 8$

x	y
0	2
8	0



6. $x = 2$

Vertical Line



(Neg coeff.)

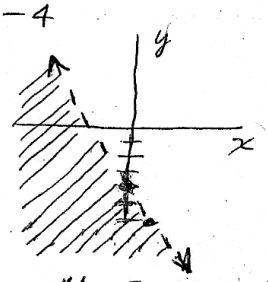
7. $y < -2x - 4$

y int = -4

$m = \frac{-2}{1}$

Dotted Line

Shade below

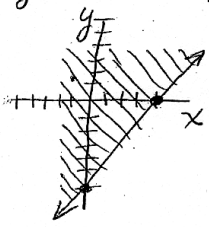


8. $-3x + 2y \geq -12$

x	y
0	-6
4	0

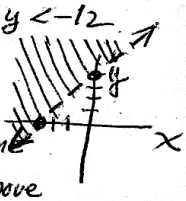
Solid Line

Shade Above



9. $4x - 3y < -12$

x	y
0	4
-3	0



Dotted Line

Shade Above

10. $y = 6 - 3x$

$m = -3$

y int = 6

11. $3x - 2y = 6$

x int = 2

y int = -3

12. $y = 6$

Horizontal Line

$m = 0$

y int = 6

13. $x = 6$

Vertical Line

m = undef.

x int = 6

14. $y = 2x + 4$

$m = 2$

x int ($y = 0$)

$0 = 2x + 4$

$-4 = 2x$

$x = -2$

y int = 4

15. $2x - 3y = 6$

$\frac{-3y}{-3} = \frac{-2x}{-3} + \frac{6}{-3}$

$y = \frac{2}{3}x - 2$

$m = \frac{2}{3}$

x int = 3

y int = -2

16. $(-1,-3)$ $(2,9)$

$m = \frac{9-(-3)}{2-(-1)}$

$= \frac{12}{3} = 4$

17. $(-2,5)$ $(4,-3)$

$m = \frac{-3-5}{4-(-2)}$

$= \frac{-8}{6} = -\frac{4}{3}$

18. $(-2,0)$ $(0,3)$

$m = \frac{3-0}{0-(-2)} = \frac{3}{2}$

19. $m = 2$

a) $m_{parallel} = 2$

b) $m_{\perp} = -\frac{1}{2}$

20. $-2x + y = 8$

$3x - y = 2$

$x = 10$

$-20 + y = 8$

$y = 28$

Ch: $3x - y = 2$

$30 - 28 = 2$ ✓

21. $-3x + 5y = 10$

$-(x - y = -6)$

$-3x + 5y = 10$

$3x - 3y = -18$

$2y = -8$

$y = -4$

$x - (-4) = -6$

$x + 4 = -6$

$x = -10$

Ch: $-3x + 5y = 10$

$30 - 20 = 10$ ✓

22. $2(3x + 5y = 2)$

$-3(2x + 3y = -4)$

$6x + 10y = 4$

$-6x - 9y = 12$

$y = 16$

$3x + 80 = 2$

$3x = -78$

$x = -26$

Ch: $2x + 3y = -4$

$-52 + 48 = -4$ ✓

23. $x = 5y + 24$

$3x - y = 2$

$3(5y + 24) - y = 2$

$15y + 72 - y = 2$

$14y = -70$

$y = -5$

$x = 5y + 24$

$x = -25 + 24$ $x = 1$

Ch: $-3 + 5 = 2$ ✓

24. $-4(x - 2y = -2)$

$4x - 8y = -8$

$-4x + 8y = 8$

$4x - 8y = -8$

$0 = 0$ Same Line

25. $5y - 4x = 22$

$x = -4y + 5$

$5y - 4(-4y + 5) = 22$

$5y + 16y - 20 = 22$

$21y = 42$

$y = 2$

$x = -4y + 5$

$x = -4(2) + 5$

$x = -3$

Ch: $5y - 4x = 22$

$10 + 12 = 22$ ✓