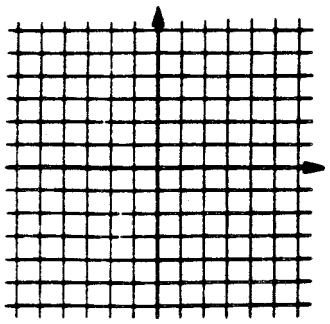
MAT 0024 EXAM 4, Form E Name _____

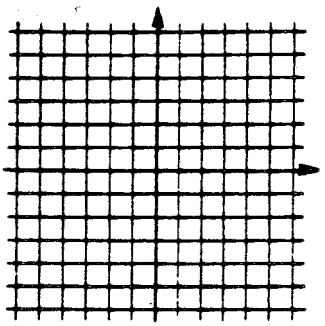
Show all work on this test. If additional worksheets are used they must be turned in with this test. NO CALCULATORS!

In 1 - 6, graph the equations:

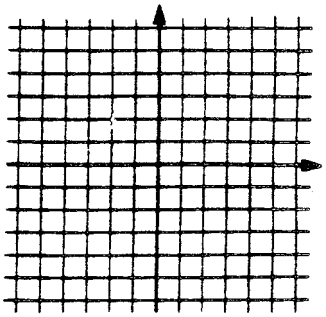
1. $y = 3x + 2$



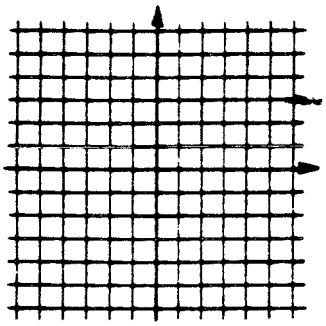
2. $y = -x + 4$



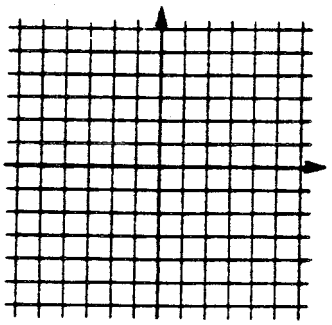
3. $x - 2y = -4$



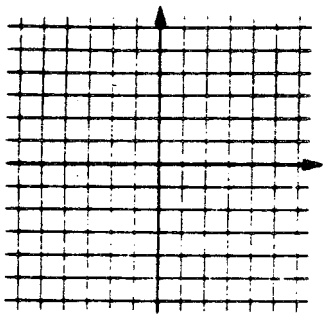
4. $3x + 2y = 6$



5. $2x = 3y - 6$

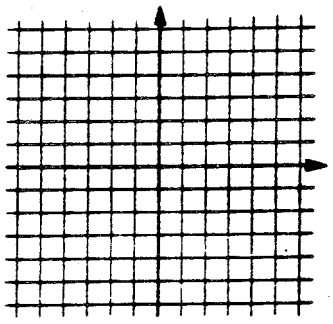


6. $y = -2$

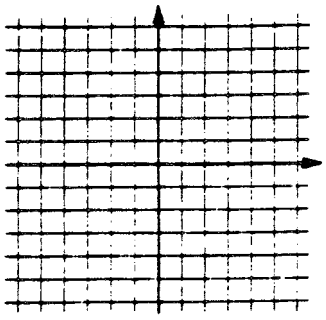


In 7 and 8, graph the inequalities:

7. $3x - 2y \leq 12$



8. $y < -2x + 4$



In 9 - 17, find the slope of each line:

9. $y = 4 + 2x$

10. $3x + 5y = 15$

11. $x = 3$

12. $y = 4$

13. Between (4, 8) and (6, 16)

14. Between (7, -2) and (-2, 1)

15. Between (-3, 0) and (0, -2)

16. Given $m = -3$

a) Slope parallel = ____

b) Slope perpendicular = ____

17. Given $m = \frac{2}{3}$

a) Parallel m = ____

b) Perpend m = ____

In 18 and 19, give the y-intercept and x-intercept:

18. $y = -x + 5$

19. $3x - 2y = 12$

In 20 - 24, solve for x and y. (If the equations represent parallel lines or the same line, indicate so.)

20. $2x - y = 9$
$x + y = 3$

21. $3x + 4y = 10$
$x - y = 1$

22. $2x - 5y = 6$
$x - 3y = -3$

23. $x - 3y = 8$
$-2x + 6y = -16$

24. $5x + 3y = -2$
$2x + 5y = 22$

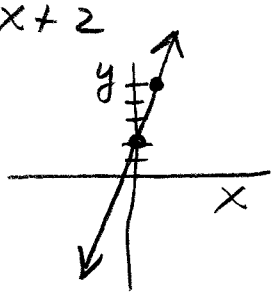
25. $y = -4x + 5$
$4y - 5x = -22$

BASIC ALGEBRA EXAM 4E Solutions

1. $y = 3x + 2$

y int $= 2$

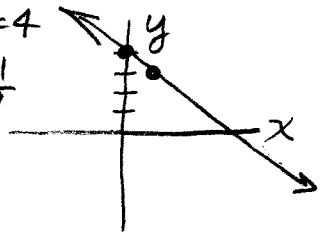
$m = \frac{3}{1}$



2. $y = -x + 4$

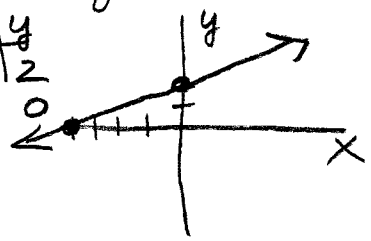
y int $= 4$

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



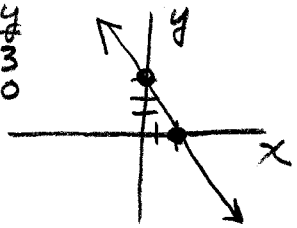
3. $x - 2y = -4$

x	y
0	2
-4	0



4. $3x + 2y = 6$

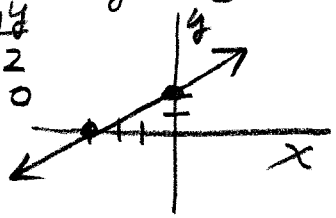
x	y
0	3
2	0



5. $2x = 3y - 6$

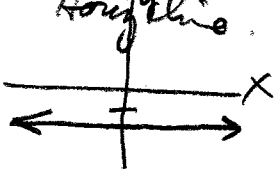
$2x - 3y = -6$

x	y
0	2
-3	0



6. $y = -2$

Horizontal line

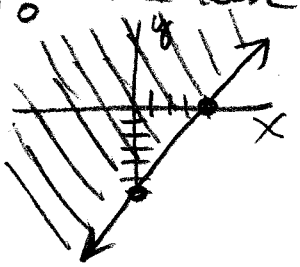


7. $3x - 2y \leq 12$

x	y
0	-6
4	0

Solid line

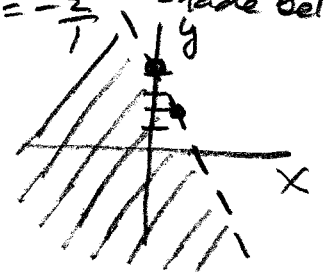
Shade above



8. $y < -2x + 4$

y int $= 4$ Dotted Line

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



9. $y = 4 + 2x$

$m = 2$

10. $3x + 5y = 15$

$5y = -3x + 15$

$y = \frac{-3}{5}x + \frac{15}{5}$

$m = -3/5$

11. $x = 3$

Vertical Line

$m =$ undefined

12. $y = 4$

Horizontal Line

$m = 0$

13. $(4,8)\ (6,16)$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{16-8}{6-2} = \frac{8}{2} = 4$

14. $(7,-2)\ (-2,1)$

$m = \frac{1-(-2)}{-2-7} = \frac{3}{-9} = \frac{-1}{3}$

15. $(-3,0)\ (0,-2)$

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

16. $m = -3$

a) Same slope $= -3$

b) Neg recip $= 1/3$

17. $m = 2/3$

a) Same slope $= 2/3$

b) Neg recip $= -3/2$

18. $y = -x + 5$

$x + y = 5$

x	y
0	5
5	0

y int $= 5$

x int $= 5$

19. $3x - 2y = 12$

y int $= -6$

x int $= 4$

x	y
0	-6
4	0

20. $2x - y = 9$

$x + y = 3$

$3x = 12$

$x = 4$

$4 + y = 3$

$y = -1$

Ch: $2(4) - (-1) = 9$ ✓

21. $3x + 4y = 10$

$-3(x - y = 1)$

$3x + 4y = 10$

$-3x + 3y = -3$

$7y = 7$

$y = 1$

$3x + 4 = 10$

$3x = 6$

$x = 2$

Ch: $2 - (1) = 1$ ✓

22. $2x - 5y = 6$

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

$2x - 5y = 6$

$-2x + 6y = 6$

$y = 12$

$2x - 60 = 6$

$2x = 66$

$x = 33$

Ch: $33 - 36 = -3$

23. $2(x - 3y = 8)$

$-2x + 6y = -16$

$2x - 6y = 16$

$-2x + 6y = -16$

$0 = 0$

SAME LINE

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

$-5(2x + 5y = 22)$

$10x + 6y = -4$

$-10x - 25y = -110$

$-19y = -114$

$y = 6$

$5x + 3y = -2$

$5x + 18 = -2$

$5x = -20$

$x = -4$

Ch: $2(-4) + 5(6) = 22$

$-8 + 30 = 22$ ✓

25. $y = -4x + 5$

$4y - 5x = -22$

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

$-16x + 20 - 5x = -22$

$-21x = -42$

$x = 2$

$y = -4(2) + 5$

$y = -3$

25. $m=-3$ $y\text{int}=-4$

$$y=-3x-4$$

26. $m=3$ $(x_1, y_1) = (-4, 2)$

$$y-y_1=m(x-x_1)$$
$$y-2=3(x+4)$$
$$y-2=3x+12$$
$$+2 \qquad +2$$
$$y=3x+14$$

27. $m=-3$ $(x_1, y_1) = (2, -3)$

$$y-y_1=m(x-x_1)$$
$$y+3=-3(x-2)$$
$$y+3=-3x+6$$
$$-3 \qquad -3$$
$$y=-3x+3$$

28. $m=\frac{2}{3}$ $(x_1, y_1) = (-4, -2)$

$$y-y_1=m(x-x_1)$$
$$3(y+2)=\frac{2}{3}(x+4)$$
$$3y+6=2x+8$$
$$3y=2x+2$$
$$y=\frac{2}{3}x+\frac{2}{3}$$