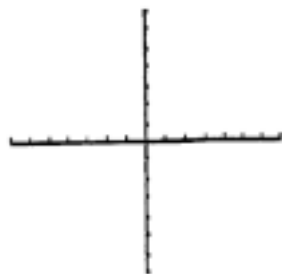


BASIC ALGEBRA Exam 4 (One Step Ch 4) FORMS A and B Dr. Rapalje

**SHOW ALL WORK AS NECESSARY ON THIS TEST OR ON SEPARATE PAPER.
CALCULATORS ARE ALLOWED ON THIS TEST, BUT YOU MUST SHOW ALL WORK.**

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

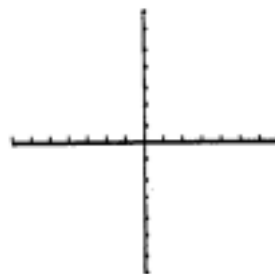
1. $y = -2x - 2$



2. $y = 3x$



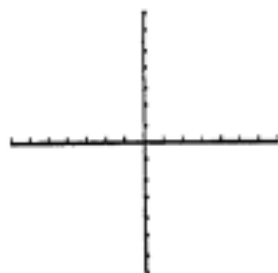
3. $y = -\frac{2}{3}x + 3$



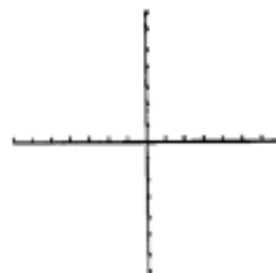
4. $-3x + 2y = 6$



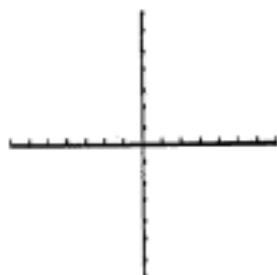
5. $3x - 2y = -6$



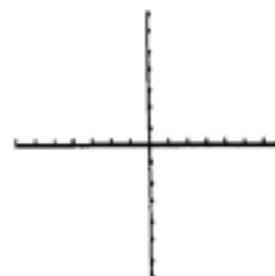
6. $y = -2$



7. $y \leq -\frac{3}{5}x$



8. $3x - 2y > -6$



In 9 - 14, find the slope and the y-intercept.

9. $y = \frac{3}{2}x$

slope = _____

Y-int = _____

10. $y = x - 6$

slope = _____

Y-int = _____

11. $y = -x + 2$

slope = _____

Y-int = _____

12. $-2x + 5y = -10$

slope = _____

Y-int = _____

13. $x - 4y = -8$

slope = _____

Y-int = _____

14. A vertical line

slope = _____

In 15 - 16, give the X and Y-intercepts.

15. $-3x + 2y = 12$

16. $y = -4x - 8$

In 17 - 20, find the slope between the two points.

17. (2, 5) and (6, -1)

18. (-2, 5) and (-4, -3)

19. (-2, 5) and (4, -3)

20. (3, 5) and (3, 7)

In 21 - 23, find the equation of a line in slope-intercept ($y = mx + b$) form.

21. with slope 4, passing through (-3, -2).

22. with slope -2, passing through (-3, 2)

23. with slope $-\frac{5}{3}$, passing through (5, -8).

In 24 - 26, solve the systems of equations. (Show all work using methods from algebra!)

24.
$$\begin{aligned}x - 3y &= 5 \\2x + 3y &= -17\end{aligned}$$

25.
$$\begin{aligned}3y - 2x &= 10 \\x &= 4y - 15\end{aligned}$$

26.
$$\begin{aligned}-5x + 2y &= -8 \\10x - 4y &= 16\end{aligned}$$

27.
$$\begin{aligned}5x + 3y &= 14 \\9x + 4y &= 7\end{aligned}$$

28. If $f(x) = -3x + 4$,

a) $f(0) =$

b) $f(2) =$

c) $f(-2) =$

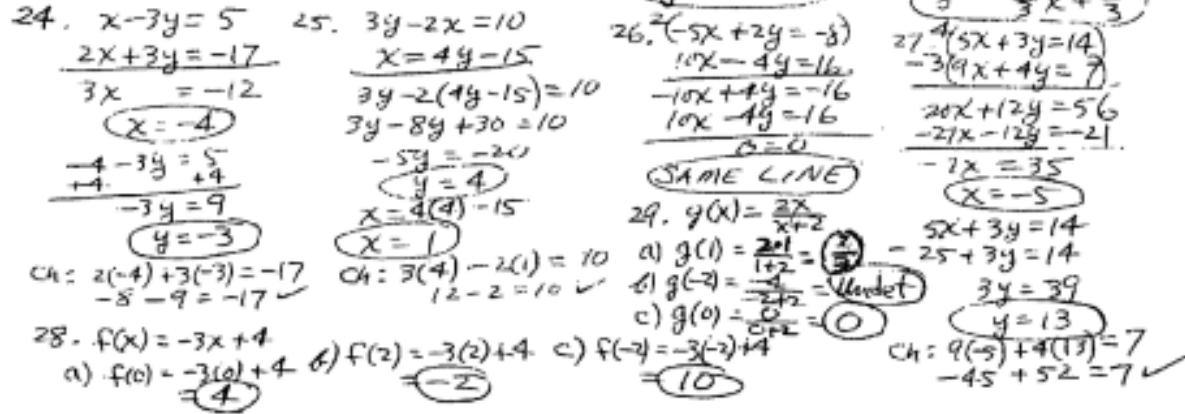
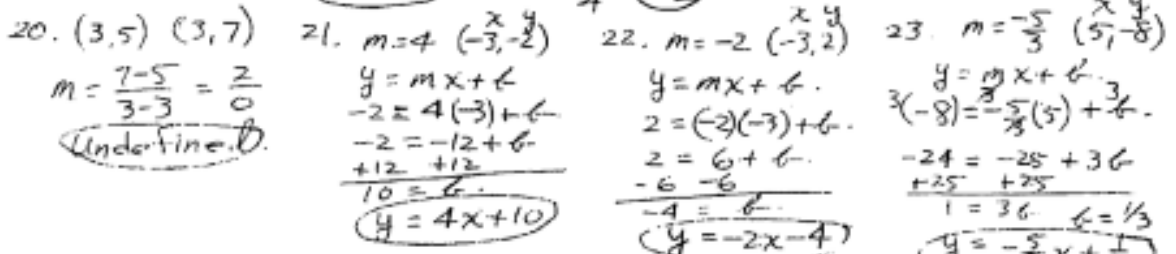
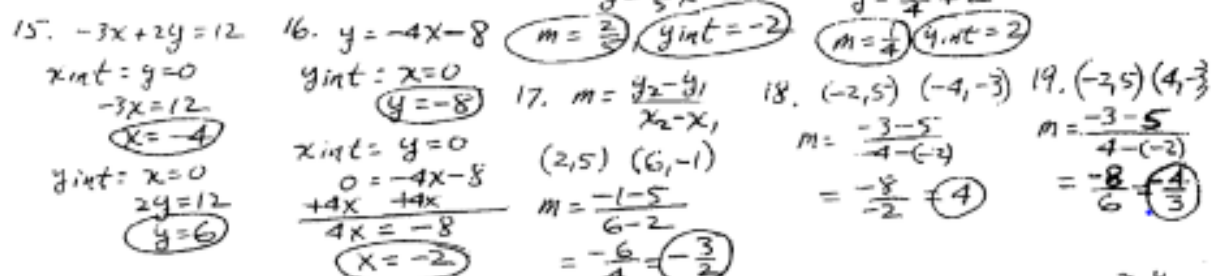
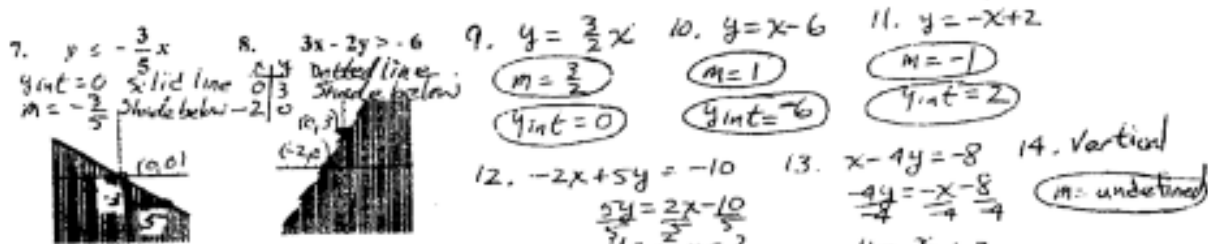
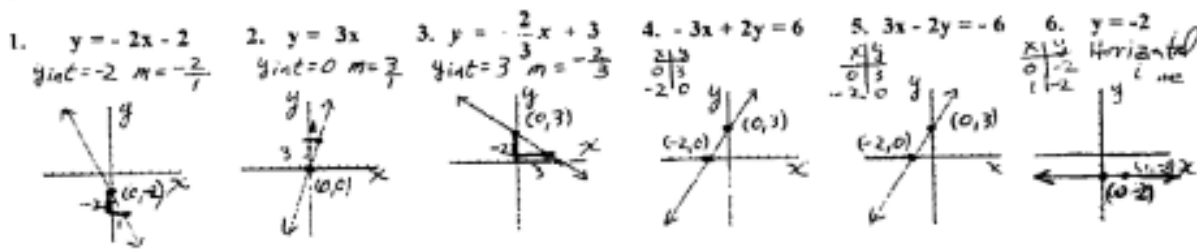
29. If $g(x) = \frac{2x}{x + 2}$,

a) $g(1) =$

b) $g(-2) =$

c) $g(0) =$

BASIC ALGEBRA EXAM 4A* Solutions



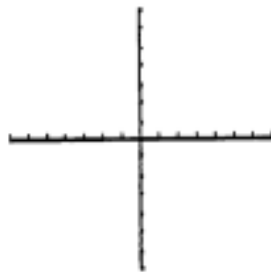
SHOW ALL WORK AS NECESSARY ON THIS TEST OR ON SEPARATE PAPER.
CALCULATORS ARE ALLOWED ON THIS TEST, BUT YOU MUST SHOW ALL WORK.

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

1. $y = 3x - 2$



2. $y = -3x + 2$



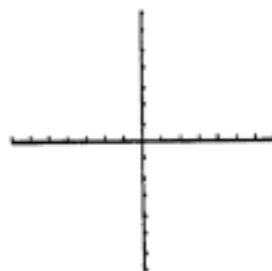
3. $y = \frac{2}{3}x - 3$



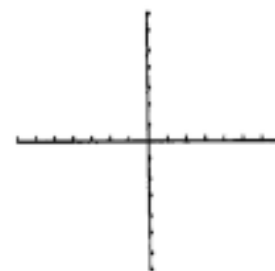
4. $3x - 2y = 6$



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



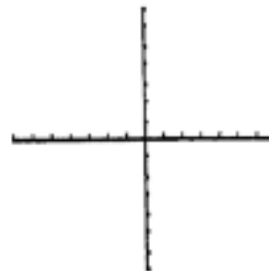
6. $x = -2$



7. $y \geq -\frac{4}{3}x + 3$



8. $3x - 2y < -6$



In 9 - 14, find the slope and the y-intercept.

9. $y = 3x + 4$

slope = _____

Y-int = _____

10. $y = -x - 2$

slope = _____

Y-int = _____

11. $y = x$

slope = _____

Y-int = _____

12. $5x + 2y = 10$

slope = _____

Y-int = _____

13. $6x - 3y = 9$

slope = _____

Y-int = _____

14. A horizontal line

slope = _____

In 15 - 16, give the X and Y-intercepts.

15. $3x - 6y = 12$

16. $y = 4x - 8$

In 17 - 20, find the slope between the two points.

17. (2, 5) and (6, 1)

18. (-2, 7) and (4, -2)

19. (3, 5) and (3, 7)

20. (3, 5) and (7, 5)

In 21 - 23, find the equation of a line in slope-intercept ($y = mx + b$) form.

21. with slope 3, passing through (4, 2).

22. with slope -3, passing through (-4, -2).

23. with slope $-3/4$, passing through (5, -6).

In 24 - 26, solve the systems of equations. (Show all work using methods from algebra!)

24.
$$\begin{aligned} 2x + y &= 8 \\ x - y &= 1 \end{aligned}$$

25.
$$\begin{aligned} y &= 8 - 2x \\ 5x + 3y &= 19 \end{aligned}$$

26.
$$\begin{aligned} 5x - 2y &= 8 \\ 10x - 4y &= 8 \end{aligned}$$

27.
$$\begin{aligned} 3x - 5y &= -3 \\ 2x + 3y &= 17 \end{aligned}$$

28. If $f(x) = 3x + 4$,

a) $f(0) =$

b) $f(2) =$

c) $f(-2) =$

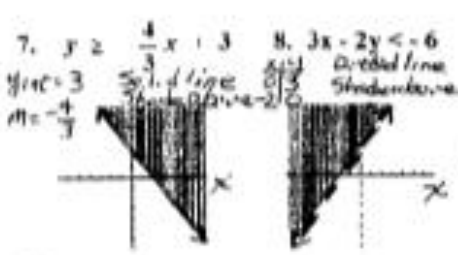
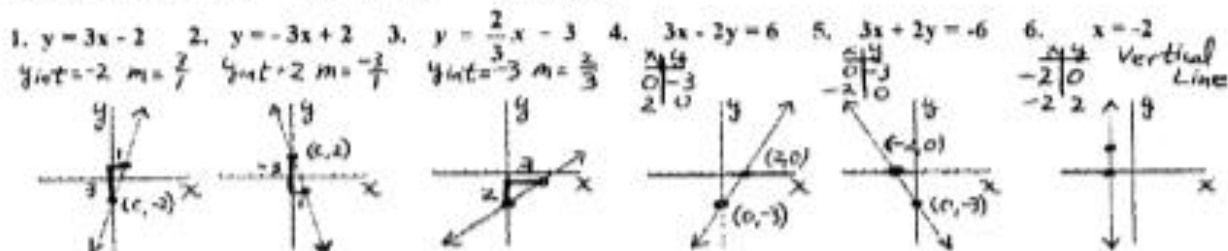
29. If $g(x) = \frac{3x - 5}{2x}$,

a) $g(1) =$

b) $g(4) =$

c) $g(0) =$

BASIC ALGEBRA EXAM 4B* Solutions



9. $y = 3x + 4$ 10. $y = -x - 2$ 11. $y = x$

$m = 3$ $m = -1$ $m = 1$
 $y\text{-int} = 4$ $y\text{-int} = -2$ $y\text{-int} = 0$

12. $5x + 2y = 10$ 13. $6x - 3y = 9$ 14. Horizontal

$\frac{2y}{2} = \frac{-5x + 10}{2}$ $\frac{-3y}{-3} = \frac{-6x + 9}{-3}$ $m = 0$
 $y = -\frac{5}{2}x + 5$ $y = 2x - 3$ $m = 0$
 $m = -\frac{5}{2}$ $y\text{-int} = 5$ $m = 2$ $y\text{-int} = -3$

15. $3x - 6y = 12$ 16. $y = 4x - 8$

$x\text{-int: } y = 0$ $y\text{-int: } x = 0$
 $3x = 12$ $y = -8$
 $x = 4$
 $y\text{-int: } x = 0$ $x\text{-int: } y = 0$
 $-6y = 12$ $0 = 4x - 8$
 $y = -2$ $-8 = 4x - 8$
 $0 = 4x$ $x = 2$

17. $m = \frac{y_2 - y_1}{x_2 - x_1}$ 18. $(-2, 7)$ $(4, -2)$ 19. $(3, 5)$ $(3, 7)$

$m = \frac{7 - (-2)}{-2 - 4} = \frac{9}{-6} = -\frac{3}{2}$ $m = \frac{7 - 5}{3 - 3} = \frac{2}{0}$ (Undefined)
 $m = \frac{5 - (-2)}{3 - 3} = \frac{7}{0}$ (Undefined)

21. $m = 3$ $(4, 2)$

$y = mx + b$
 $2 = 3(4) + b$
 $2 = 12 + b$
 $-10 = b$
 $y = 3x - 10$

22. $m = -3$ $(-4, 2)$

$y = mx + b$
 $2 = (-3)(-4) + b$
 $2 = 12 + b$
 $-10 = b$
 $y = -3x - 10$

23. $m = -\frac{7}{4}$ $(5, -6)$

$y = mx + b$
 $-6 = (-\frac{7}{4})(5) + b$
 $-6 = -\frac{35}{4} + b$
 $-\frac{15}{4} = b$
 $y = -\frac{7}{4}x - \frac{15}{4}$

24. $2x + y = 8$ $x - y = 1$

$3x = 9$
 $x = 3$
 $2(3) + y = 8$
 $6 + y = 8$
 $y = 2$
 Ck: $x - y = 1$
 $3 - 2 = 1$ ✓

25. $6x + y = 8$ $5x + 7y = 19$

$-6x - 3y = -24$
 $5x + 7y = 19$
 $-x = -5$
 $x = 5$
 $2x + y = 8$
 $2(5) + y = 8$
 $10 + y = 8$
 $y = -2$

26. $5x - 2y = 8$ $10x - 4y = 8$

$-10x + 4y = -16$
 $10x - 4y = 8$
 $0 = -8$
 No Solution
 Parallel Lines

27. $3x - 5y = -3$ $2x + 3y = 17$

$-3(2x + 3y = 17)$
 $6x - 10y = -6$
 $-6x - 9y = -51$
 $-19y = -57$
 $y = 3$
 $3x - 5(3) = -3$
 $3x - 15 = -3$
 $3x = 12$
 $x = 4$
 Ck: $2x + 3y = 17$
 $2(4) + 3(3) = 17$
 $8 + 9 = 17$ ✓

28. $f(x) = 3x + 4$

a) $f(0) = 3(0) + 4 = 4$
 b) $f(2) = 3(2) + 4 = 10$
 c) $f(-2) = 3(-2) + 4 = -2$

29. $g(x) = \frac{3x - 5}{2x}$

a) $g(1) = \frac{3(1) - 5}{2(1)} = \frac{-2}{2} = -1$
 b) $g(0) = \frac{3(0) - 5}{2(0)} = \frac{-5}{0}$ (Undefined)
 c) $g(2) = \frac{3(2) - 5}{2(2)} = \frac{1}{4}$