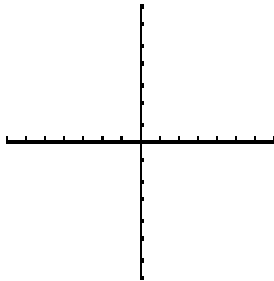


BASIC ALGEBRA EXAM 4 X* NAME _____

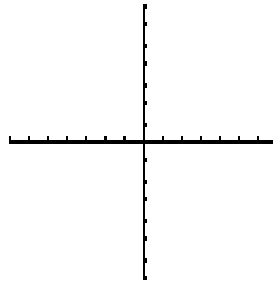
SHOW ALL WORK ON THIS TEST OR ON SEPARATE PAPER.

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

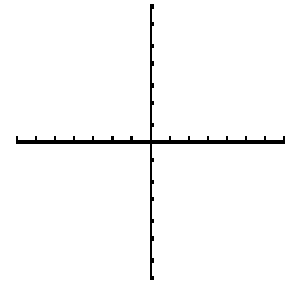
1. $y = 2x + 5$



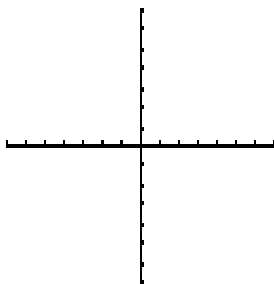
2. $y = -5x$



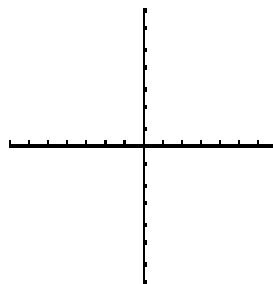
3. $y = -\frac{3}{5}x - 2$



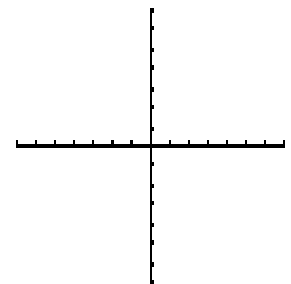
4. $3x + y = 6$



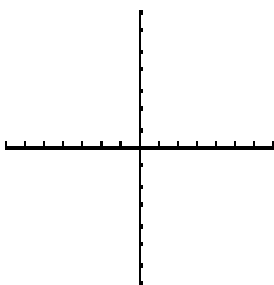
5. $4y - 3x = 12$



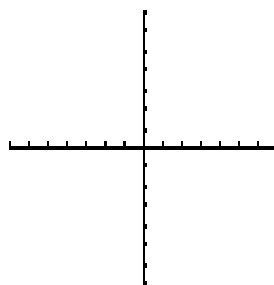
6. $y = -4$



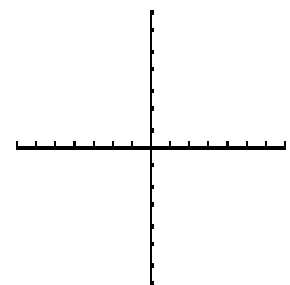
7. $y \geq -2x + 4$



8. $-2x + 3y < 12$



9. $2x - 3y \geq -6$



BASIC ALGEBRA EXAM 4 X* **NAME** _____

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

10. $y = 5x - 3$

slope = _____

y -int = _____

11. $6x - 4y = 12$

x -int = _____

y -int = _____

12. $x = -6$

slope = _____

y -int = _____

13. $y = 6$

slope = _____

x -int = _____

14. $y = -2x - 6$

slope = _____

x -int = _____

y -int = _____

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

slope = _____

x -int = _____

y -int = _____

In 16 - 19, find the slope of a line

16. between $(-1, 3)$ and $(2, 12)$

17. between $(-2, 3)$ and $(3, -1)$

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

19a) parallel to a line whose slope is -5

b) perpendicular to a line whose slope is -5 .

BASIC ALGEBRA EXAM 4 X* NAME _____

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

20.
$$\begin{aligned} 2x - y &= 12 \\ x + y &= -6 \end{aligned}$$

21.
$$\begin{aligned} -3x + 5y &= 10 \\ 6x - 10y &= 20 \end{aligned}$$

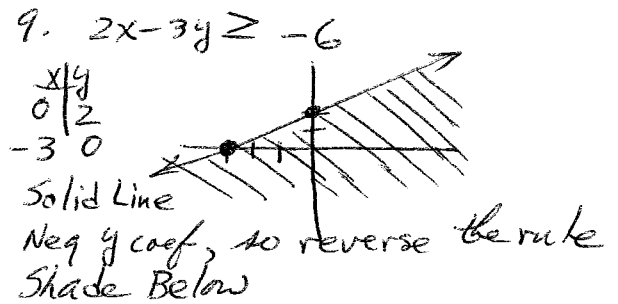
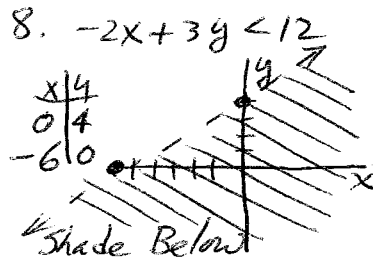
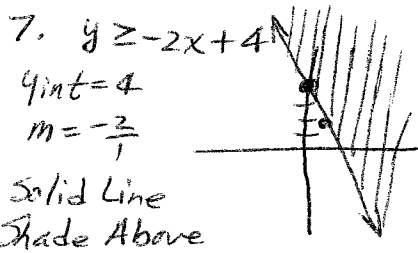
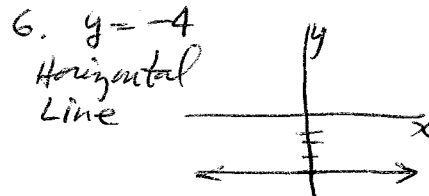
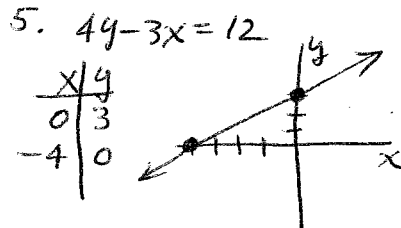
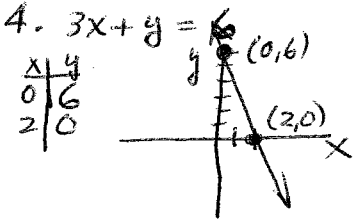
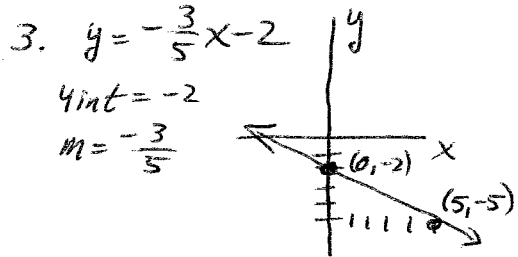
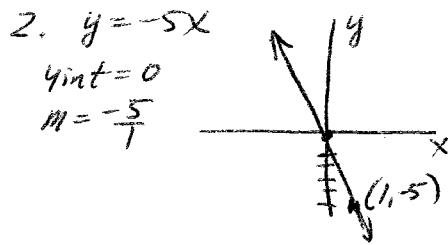
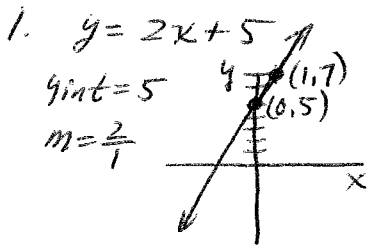
22.
$$\begin{aligned} 2x - 3y &= -32 \\ 3x - 4y &= -36 \end{aligned}$$

23.
$$\begin{aligned} 5x + 3y &= 14 \\ 9x + 4y &= 7 \end{aligned}$$

24.
$$\begin{aligned} y &= 3x - 5 \\ 9x - 2y &= 4 \end{aligned}$$

25.
$$\begin{aligned} 12y + 5x &= 41 \\ x &= 4 - 3y \end{aligned}$$

BASIC ALGEBRA EXAM 4X Solutions



10. $y = 5x - 3$
 $m = 5$
 $y_{int} = -3$

11. $6x - 4y = 12$
 $x_{int} (y=0) x = 2$
 $y_{int} (x=0) y = -3$

12. $x = -6$
 Vertical Line
 $m = \text{undefined}$
 $y_{int} = \text{None}$

13. $y = 6$
 Horizontal Line
 $m = 0$
 $x_{int} = \text{None}$

14. $y = -2x - 6$
 $m = -2$
 $x_{int} (y=0) x = -3$
 $y_{int} = -6$

15. $2x + 3y = -12$
 $3y = -2x - 12$
 $y = -\frac{2}{3}x - 4$
 $m = -\frac{2}{3}$
 $x_{int} (y=0) x = -6$
 $y_{int} (x=0) y = -4$

16. $(-1, 3) (2, 12)$
 $m = \frac{y_2 - y_1}{x_2 - x_1}$
 $= \frac{12 - 3}{2 - (-1)} = \frac{9}{3} = 3$

17. $(-2, 3) (3, -1)$
 $m = \frac{-1 - 3}{3 - (-2)} = \frac{-4}{5}$

18. $(-2, 0) (0, -3)$
 $m = \frac{-3 - 0}{0 - (-2)} = \frac{-3}{2}$

19. $m = -5$
 a) $m_{\text{parallel}} = \text{Same Slope} = -5$
 b) $m_{\perp} = \text{Neg Reciprocal} = \frac{1}{5}$

20. $2x - y = 12$
 $x + y = -6$
 $\frac{3x = 6}{x = 2}$
 $x + y = -6 \Rightarrow y = -8$
 $(2, -8)$

21. $\begin{cases} -3x + 5y = 10 \\ 6x - 10y = 20 \end{cases}$
 $\frac{6x - 10y = 20}{-6x + 10y = 20}$
 $0 = 40$
 No Solution.
 Parallel Lines

22. $\begin{cases} 2x - 3y = -32 \\ -2(3x - 4y) = -36 \end{cases}$
 $\frac{2x - 3y = -32}{-6x + 8y = 72}$
 $\frac{2x - 3y = -32}{-6x + 8y = 72}$
 $\frac{-4y = -24}{y = 24}$
 $2x - 3(24) = -32$
 $2x - 72 = -32$
 $2x = 40$
 $x = 20$
 $(20, 24)$

Ch: $2x - y = 12$
 $2(2) - (-8) = 12$
 $4 + 8 = 12$

24. $y = 3x - 5$
 $9x - 2y = 4$
 $9x - 2(3x - 5) = 4$
 $9x - 6x + 10 = 4$
 $3x + 10 = 4$
 $3x = -6$
 $x = -2$
 $y = 3(-2) - 5 = -6 - 5 = -11$
 $(-2, -11)$

25. $12y + 5x = 41$
 $x = 4 - 3y$
 $12y + 5(4 - 3y) = 41$
 $12y + 20 - 15y = 41$
 $-3y + 20 = 41$
 $-3y = 21$
 $y = -7$

Ch: $3x - 4y = -36$
 $3(20) - 4(24) = -36$
 $60 - 96 = -36$
 $(20, 24)$
 $x = 4 - 3y$
 $x = 4 - 3(-7)$
 $x = 4 + 21$
 $x = 25$
 $(25, -7)$
 Ch: $12y + 5x = 41$
 $-84 + 125 = 41$

23. $\begin{cases} 5x + 3y = 14 \\ -3(4x + 4y) = 7 \end{cases}$
 $\frac{20x + 12y = 56}{-12x - 12y = -21}$
 $\frac{8x = 35}{x = \frac{35}{8}}$
 $5x + 3y = 14$
 $-25 + 3y = 14$
 $3y = 39$
 $y = 13$
 Ch: $9x + 4y = 7$
 $9(\frac{35}{8}) + 4(13) = 7$
 $45 + 52 = 7$
 $(-5, 13)$