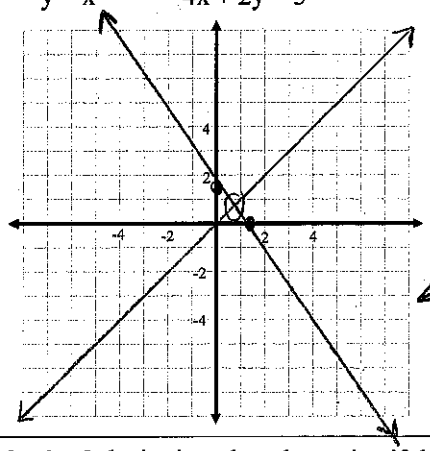
Quiz REVIEW Linear Functions
Algebra II

Name _____
Date _____ Hr _____

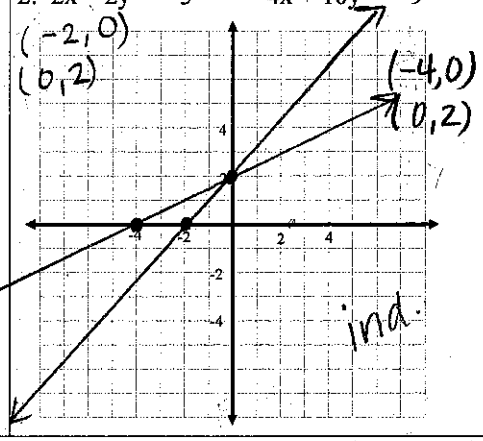
Solve by graphing, then determine if the solution is independent, dependent or inconsistent.

1. $y = x$ $\quad 4x + 2y = 3$

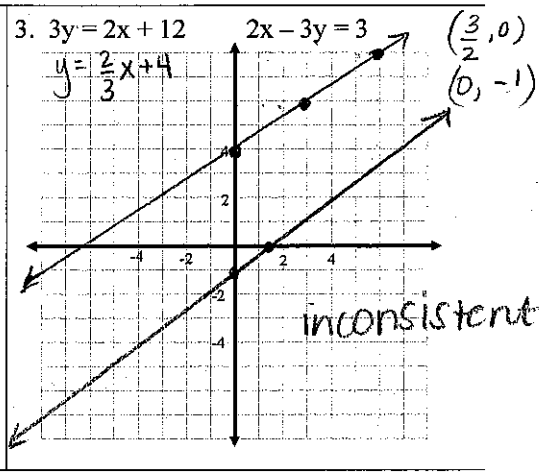


ind.

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



3. $3y = 2x + 12$ $\quad 2x - 3y = 3$



Solve by Substitution, then determine if the solution is independent, dependent or inconsistent.

4. $5x - 6y = 19$ $\quad 4x + 3y = 10$

$5x = 19 + 6y$
$x = (3.8 + 1.2y)$
$4(3.8 + 1.2y) + 3y = 10$
$15.2 + 4.8y + 3y = 10$
$15.2 + 7.8y = 10$
$7.8y = -5.2$
$y = -\frac{2}{3}$ $\quad (3, -\frac{2}{3})$ ind.
$4x + 8(-\frac{2}{3}) = 10$ $\quad 4x - 2 = 10$
$x = 3$

5. $3x + 4y = 8$ $\quad 4.5x + 6y = 12$

$4y = 8 - 3x$
$y = 2 - \frac{3}{4}x$
$4.5x + 6(2 - \frac{3}{4}x) = 12$
$4.5x + 12 - 4.5x = 12$
$12 = 12$
dependent

6. $2x + 5y = 62$ $\quad 3x - y = 23.3$

$y = -23.3 + 3x$
$2x + 5(-23.3 + 3x) = 62$
$2x + 15x - 116.5 = 62$
$17x = 178.5$
$x = 10.5$
$21 + 5x = 62$ $\quad (10.5, 8.2)$
$5x = 41$
$x = 8.2$ $\quad$ ind.

Solve by Elimination, then determine if the solution is independent, dependent or inconsistent. Set up a system of equations.

7. You purchase 8 gal of paint and 3 brushes for $152.50. The next day, you purchase 6 gal of paint and 2 brushes for $113.00. How much does each gallon of paint and each brush cost?

$-2(8p + 3b = 152.5)$
$3(6p + 2b = 113)$
ind.
$-16p - 6b = -305$
$18p + 6b = 339$
$2p = 34$
$p = 17$
$6(17) + 2b = 113$
$102 + 2b = 113$
$2b = 11$
$b = 5.50$

8. The math club and science club are doing a fundraiser. The math club spent $135 buying six cases of juice and one case of water. The science club spent $110 buying four cases of juice and two cases of water. How much did a case of juice cost and a case of water?

$-2(6j + w = 135)$ $\quad -12j - 2w = -270$
$4j + 2w = 110$ $\quad 4j + 2w = 110$
$-8j = -160$
$j = 20$
$6(20) + w = 135$
$120 + w = 135$
$w = 15$
ind.

9. Lisa buys her kids four shirts and three pairs of pants for $85.50. The next day she returns and buys three shirts and five pairs of pants for $115.00. What is the price for a shirt and a pair of pants?

$-3(4x + 3y = 85.50)$
$4(3x + 5y = 115)$
$-12x - 9y = -256.50$
$12x + 20y = 460$
$11y = 203.5$
$y = \$18.5$ pants
$\$17.50$ shirts
ind.

Write the equation that is the translation of $y = |x|$

10. 13 units right and 41 units down

$y = |x - 13| - 41$

11. 8 units up and 12 units left

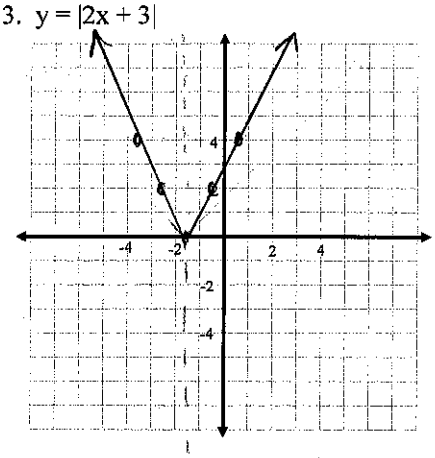
$y = |x + 12| + 8$

12. 9 units down and 4 units left

$y = |x + 4| - 9$

Graph the function, find the vertex, the axis of symmetry, state the domain and range and describe the end behavior using limit notation. Make a table.

13. $y = |2x + 3|$

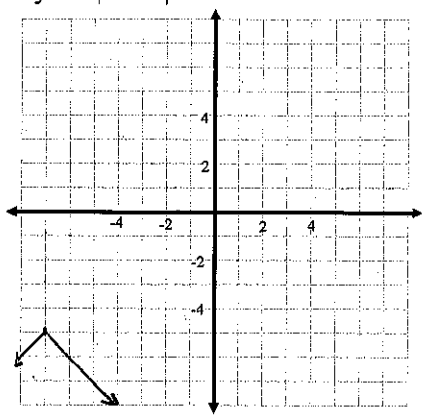


vertex $= \left(-\frac{3}{2}, 0\right)$ d: $(-\infty, \infty)$

AOS $x = -\frac{3}{2}$ r: $(0, \infty)$

↑, ↗

14. $y = -|x + 7| - 5$



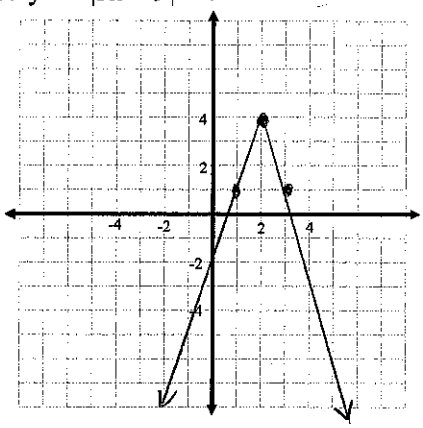
vertex $(-7, -5)$

aos $x = -7$

d: $(-\infty, \infty)$

r: $(-\infty, -5)$ ↙ ↘

15. $y = -|3x - 6| + 4$



vertex $(2, 4)$

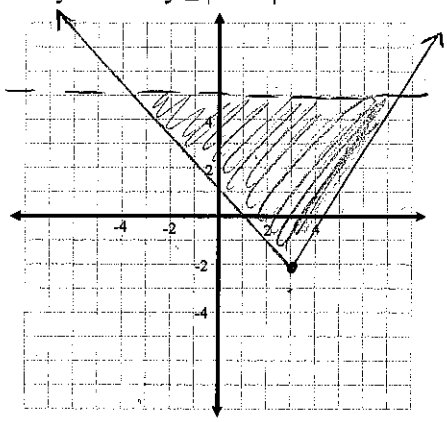
aos $(x = 2)$

d: $(-\infty, \infty)$

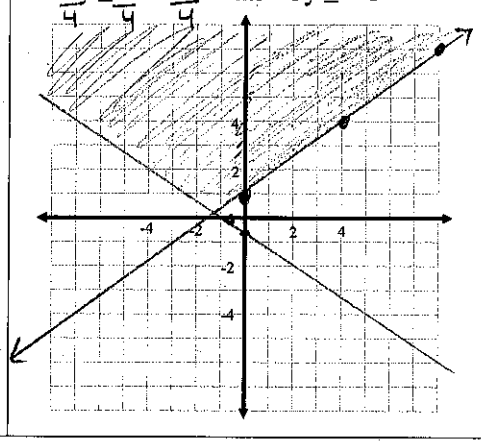
r: $(-\infty, 4)$ ↙ ↘

Solve by graphing.

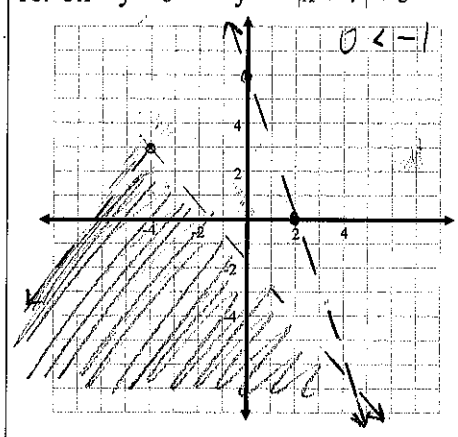
16. $y < 5$ $\quad y \geq |x - 3| - 2$



17. $\frac{4y}{4} \geq \frac{3x}{4} + \frac{4}{4}$ $\quad 2x + 3y \geq -1$



18. $3x + y < 6$ $\quad y < -|x + 4| + 3$



Solve each equation. Check for extraneous solutions.

19. $3|4x - 1| - 5 = 10$

$+5 \quad +5$

$3|4x - 1| = 15$

$|4x - 1| = 5$

$4x - 1 = -5$ $\quad 4x - 1 = 5$

$x = -1$ $\quad x = \frac{3}{2}$

20. $\frac{1}{2}|3x + 5| = 6x + 4$

$|3x + 5| = 12x + 8$

$3x + 5 = -12x - 8$ $\quad 3x + 5 = 12x + 8$

$15x = -13$ $\quad -9x = 3$

$x = \frac{-13}{15}$ $\quad x = -\frac{1}{3}$

21. $5|6 - 5x| = 15x - 7$

$|6 - 5x| = 3x - 2$

$6 - 5x = -3x + 2$ $\quad 6 - 5x = 3x - 2$

$-5x = -3x - 4$ $\quad -5x = -3x - 8$

$-2x = -4$ $\quad -8x = -8$

$x = 2$ $\quad x = 1$

Solve each inequality. Graph the solution. Show the interval notation.

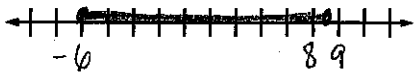
22. $|3x - 4| + 5 \leq 27$ $\quad$ A, L

$-5 \quad -5$

$3x - 4 \geq -22$ and $3x - 4 \leq 22$

$3x \geq -18$ $\quad 3x \leq 26$

$x \geq -6$ $\quad x \leq 8\frac{2}{3}$



$[-6, 8\frac{2}{3}]$

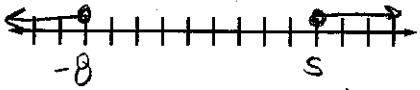
23. $|2x + 3| - 6 \geq 7$ $\quad$ G O

$|2x + 3| \geq 13$

$2x + 3 \leq -13$ $\quad 2x + 3 \geq 13$

$2x \leq -16$ $\quad 2x \geq 10$

$x \leq -8$ $\quad x \geq 5$



$(-\infty, -8]$ or $[5, \infty)$

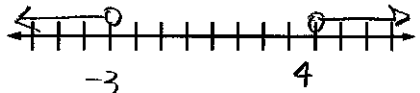
24. $3|2x - 1| > 21$

$|2x - 1| > 7$ $\quad$ GO

$2x - 1 < -7$ $\quad 2x - 1 > 7$

$2x < -6$ $\quad 2x > 8$

$x < -3$ $\quad x > 4$



$(-\infty, -3)$ or $(4, \infty)$