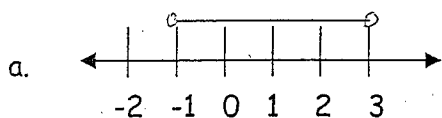
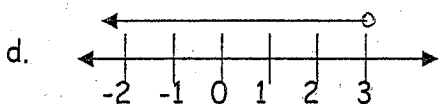
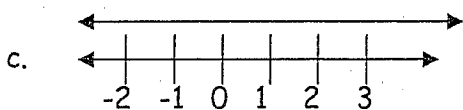
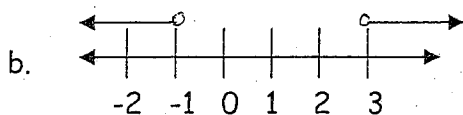


Multiple Choice.

A 1. Determine which graph represents the solution of $|x - 1| < 2$ 

$$|x - 1| < 2 \text{ and } x - 1 > -2$$

$$x < 3 \text{ and } x > -1$$

B 2. Find the slope of a line containing $(-5, 6)$ and $(-1, 8)$ \rightarrow write line in slope-intercept form

- a. $-\frac{1}{2}$
 b. $\frac{1}{2}$
 c. $-\frac{7}{3}$
 d. 2

$$\frac{8-6}{-1-(-5)} = \frac{2}{4} = \frac{1}{2}$$

B 3. Determine the vertex of $y = |x - 4| + 7$

- a. (7, 4)
 b. (4, 7)
 c. (-4, 7)
 d. (4, -7)

(4, 7)

C 4. Determine the axis of symmetry for $y = |x + 9| - 1$

- a. $x = -1$
 b. $x = 9$
 c. $x = -9$
 d. $x = 1$

C 5. Find the solution to $|5x - 10| - 5 = 15$

- a. $x = -6$
 b. $x = -2$
 c. $x = 6$ or $x = -2$
 d. $x = -6$ or $x = 2$

$$|5x - 10| = 20$$

$$5x - 10 = 20$$

$$5x = 30$$

$$x = 6$$

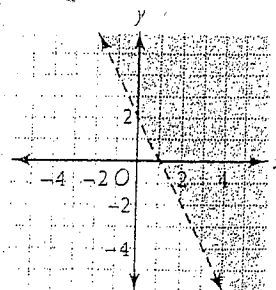
$$5x - 10 = -20$$

$$5x = -10$$

$$x = -2$$

D 6. Which inequality does the graph represent?

- a. $y \geq -2x + 2$
 b. $y > 2x + 2$
 c. $y > -2x + 1$
 d. $y > -2x + 2$



B 7. Which equation represents a graph that translates 3 units to the left and 4 units down from the parent graph?

- a. $y = |x - 3| - 4$
 b. $y = |x + 3| - 4$
 c. $y = |x - 4| - 3$
 d. $y = |x + 4| - 3$

D 8. Find the axis of symmetry for $y = 3x^2 + 8x - 5$

- a. $x = -4$
 b. $x = 4$
 c. $x = 4/3$
 d. $x = -4/3$

$$\frac{-8}{2(3)} = \frac{-8}{6} = -\frac{4}{3}$$

B 9. If the discriminant is greater than zero, then there is/are

- a. one real solution
 b. two real solutions
 c. two imaginary solutions
 d. no solutions

10. Write a system of equations to represent the following.

Last year the volleyball team paid \$5 per pair for socks and \$17 per pair for shorts on a total purchase of \$315. This year they spent \$342 to buy the same number of socks and shorts but the socks now cost \$6 per pair and the shorts cost 18.

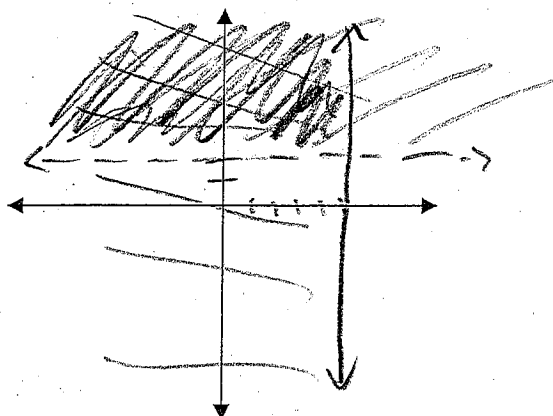
$x = \# \text{ of socks}$ $5x + 17y = 315$
 $y = \# \text{ of shorts}$ $6x + 18y = 342$

$(12, 15)$

Advanced Algebra - Exam Review

Name Wey

1. Graph: $y > 2$
 $x \leq 5$

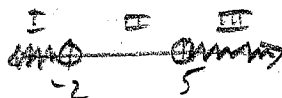


2. Solve each inequality.

a. $x^2 - 3x - 10 > 0$

$$(x-5)(x+2) > 0$$

$$\begin{array}{cc} \downarrow & \downarrow \\ x=5 & x=-2 \end{array}$$



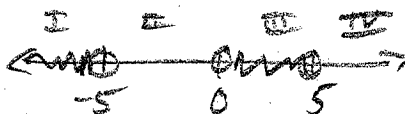
$$x < -2 \text{ or } x > 5$$

b. $x^3 - 25x < 0$

$$x(x^2 - 25) < 0$$

$$x(x-5)(x+5) < 0$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ x=0 & x=5 & x=-5 \end{array}$$



$$x < -5 \text{ or } 0 < x < 5$$

3. Provide the following information about the function: $y = x^2 - 2x - 8$

a. The graph opens UP

b. The axis of symmetry is $x=1$ $\frac{-b}{2a} = 1$

c. The vertex is $(1, -9)$ $y = 1^2 - 2(1) - 8 = 1 - 2 - 8 = -9$

d. Circle one: The vertex is a (minimum) or maximum) point.

e. The x-intercepts are $(4, 0)$ and $(-2, 0)$ $(x-4)(x+2)$

f. The y-intercept is $(0, -8)$

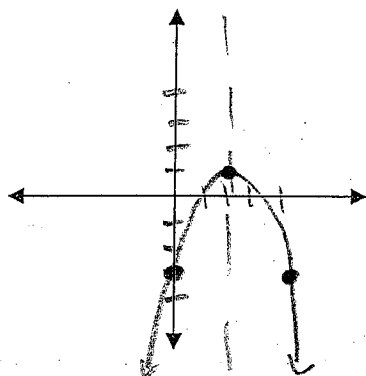
g. The point of reflection to the y-intercept is $(2, -8)$

4. Provide the following information about the function: $y > -(x - 2)^2 + 1$

- The graph opens down
- The axis of symmetry is $x = 2$
- The vertex is $(2, 1)$
- The y-intercept is $(0, -3)$
- The point of reflection of the y-intercept is $(4, -3)$
- Sketch the graph.

$$\begin{aligned} y &> -(0-2)^2 + 1 \\ y &> -(-2)^2 + 1 \\ y &> -4 + 1 \\ y &> -3 \end{aligned}$$

x intercepts $(3, 0)$
 $(1, 0)$



$$\begin{aligned} 0 &= -(x-2)^2 + 1 \\ -1 &= -(x-2)^2 \\ \sqrt{-1} &= \sqrt{-(x-2)^2} \\ \pm 1 &= x-2 \\ 3, 1 &= x \end{aligned}$$

5. Write an equation of a quadratic function in vertex form whose graph translates 4 units to the left and one unit down from the parent function.

$$y = (x+4)^2 - 1$$

Simplify.

$$\begin{aligned} 6. \quad 5x^2 + 3x - 4 - (2x + 4x^2 - 3) \\ x^2 + x - 1 \end{aligned}$$

$$\begin{aligned} 7. \quad (4x^4y^3)^{-1} \\ 4^{-1}x^{-4}y^{-3} = \frac{x^4}{4y^3} \end{aligned}$$

$$\begin{aligned} 8. \quad (5a^2b^{-7}c)(-2a^{-2}b^3c^2) \\ -10b^{-4}c^3 = \frac{-10c^3}{b^4} \end{aligned}$$

$$\begin{aligned} 9. \quad \frac{12c^{-5}}{18c^8} \\ \frac{2}{3c^{13}} \end{aligned}$$

$$\begin{aligned} 10. \quad (3x+4)(x^2-5x-3) &= 3x^3 - 15x^2 - 9x \\ &\quad + 4x^2 - 20x - 12 \\ &= 3x^3 - 11x^2 - 29x - 12 \end{aligned}$$