

Bridge to Algebra 2, Algebra 2 & Honors Algebra 2
Summer Review Packet
2011

This will not be graded.
It is for your benefit only.

The problems in this packet are designed to help you review topics from previous mathematics courses that are important to your success in Bridge to Algebra 2, Algebra 2, or Honors Algebra 2.

Note: Starred questions are for Honors Algebra 2 only.

It is recommended that you work with one or more people, to review the skills necessary for success in Algebra 2. Before you leave school, write down the names, phone numbers, and/or email addresses for at least two people who are also taking Bridge to Algebra 2, Algebra 2, or Honors Algebra 2 in the fall.

Name _____ Phone _____

Email _____

Name _____ Phone _____

Email _____

During the summer, answer keys will be posted on the Sherwood website.

Enjoy your summer. We are looking forward to seeing you in the fall.

If you have any questions, please contact the math office at (301)924-3253.

Name _____

Directions: Please show all work for all problems.

1. Line l contains the points $(-2,3)$ and $(1,5)$.

- (a) Determine the slope of the line.
- (b) Write an equation of the line.

2. Line k passes through the point $(8,-3)$ and is parallel to the graph of the line whose equation is $y = 3x - 4$. Write an equation for line k .

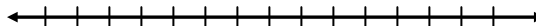
3. Line m is perpendicular to $y = 4x - 1$ and passes through the origin. What is the equation of line m ?

4. Solve the following equations. Show your work and check your answers.

(a) $(x - 1) - (4x + 6) = 8$ (b) $2x - 7x + 4 = 5(4 - 9x)$ (c) $\frac{x - 2}{x + 3} = \frac{5}{6}$

5. Solve the inequality and graph the solution set on a number line:

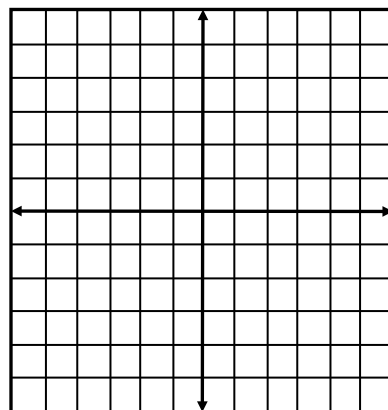
$$4(t + 2) - 3 \geq 7(t + 5)$$



6. Use $A = \begin{bmatrix} 12 & 7 \\ -1 & -3 \end{bmatrix}$ and $B = \begin{bmatrix} -5 & 6 \\ 14 & 0 \end{bmatrix}$ to perform the indicated operations.

- (a) $A + B$
- (b) $2B - A$
- (c) $-4A$

7. Solve the inequality for y $6 + 3y < 4(3 - x)$
and graph the solution set on a coordinate plane:



Is $(0, -5)$ a solution to the inequality?

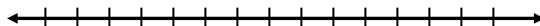
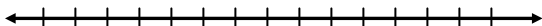
8. Solve the system of equations:

$$\begin{aligned} -x + 3y &= 0 \\ 2x + 6y &= 12 \end{aligned}$$

9. Solve for the variable and graph the solution set on a number line:

(a) $|x - 8| = 3$

(b) $|x + 4| < 2$



10. Simplify the expressions:

(a) $(x^3 + 3x^2 - 2) + (5x^3 + x + 8) - (9x^3 - x^2 + 4)$

(b) $(4x - 3y)(x + 5y)$

(c) $(2x + 1)(3x - 4)(x + 5)$

(d)
$$\frac{16x^4y - 12x^5y^3}{2x^3y^2}$$

11. Expand: $(5x - 2)^2$

12. Factor completely:

(a) $9x^2y^3 - 3x^3y^2 - 15xy$

(b) $9x^2 - 64$

(c) $2x^2 - 5x - 3$

13. Solve the quadratic equation:

(a) $x^2 + x - 42 = 0$

(b) $(x - 2)^2 = 25$

(c) $6x^2 - 13x = -6$

14. Simplify:

(a) $x^3 \cdot x^2 \cdot x$

(b) $(m^3)^5$

(c) $(y^{-2})^{-3}$

(d) $\frac{a^4}{a^7}$

(e) $\frac{3xy^5}{12x^2y^0}$

(f) $\left(\frac{2}{3}\right)^3$

(g) $\sqrt{80}$

(h) $\sqrt{12} - \sqrt{75}$

(i) $\sqrt{\frac{18}{49}}$

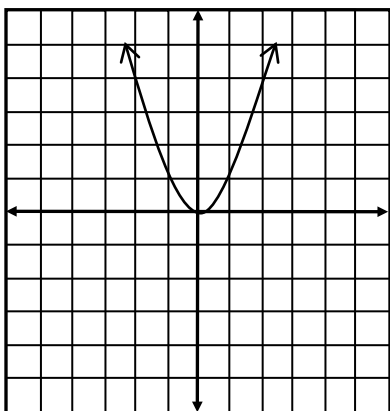
15. If y varies directly with x and y = 6 and x = -3, find y when x = 4.

16. A car salesman's weekly salary is a base amount plus an additional amount for each car sold. The table below shows a person's weekly salary earned for the last three weeks.

| Cars sold (c) | Weekly salary (S) |
|---------------|-------------------|
| 4 | \$500 |
| 9 | \$1000 |
| 12 | \$1300 |

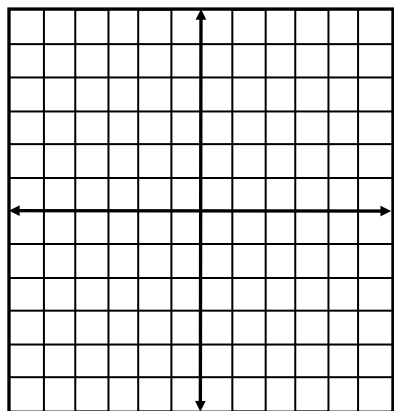
What is the person's weekly salary when 13 cars are sold?

17. The graph of $y = x^2$ and its functional characteristics are given below. On separate coordinate axes, sketch the following functions and list their functional characteristics:



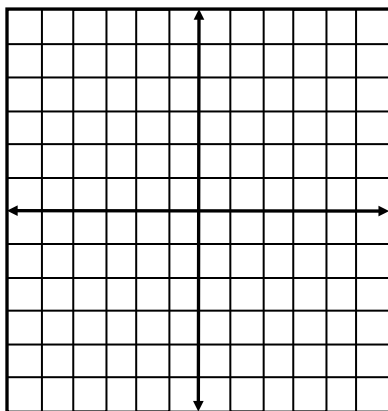
Domain: all real numbers
Range: $y \geq 0$
Axis of Symmetry: $x = 0$
Increases: $x > 0$
Decreases: $x < 0$
x-intercept(s): $(0, 0)$
y-intercept: $(0, 0)$
Minimum Value: 0
Maximum Value: none
Continuous: yes

(a) $y = (x + 3)^2 - 1$



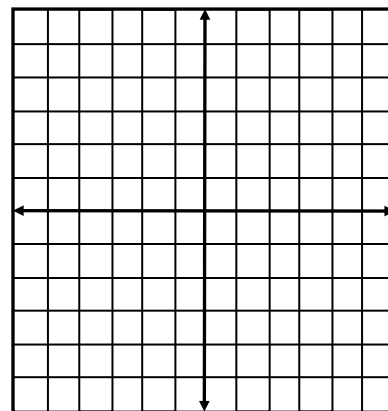
Domain:
 Range:
 Axis of Symmetry:
 Increases:
 Decreases:
 x-intercepts:
 y-intercept:
 Minimum Value:
 Maximum Value:
 Continuous:

(b) $y = -(x - 2)^2 + 3$



Domain:
 Range:
 Axis of Symmetry:
 Increases:
 Decreases:
 x-intercepts:
 y-intercept:
 Minimum Value:
 Maximum Value:
 Continuous:

(c) $y = \frac{1}{2}x^2$



Domain:
 Range:
 Axis of Symmetry:
 Increases:
 Decreases:
 x-intercepts:
 y-intercept:
 Minimum Value:
 Maximum Value:
 Continuous:

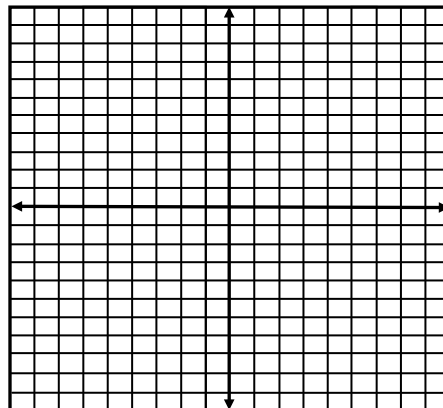
18. Write the quadratic equations in number 17 in standard form.

(a) $y = \underline{\hspace{2cm}}$

(b) $y = \underline{\hspace{2cm}}$

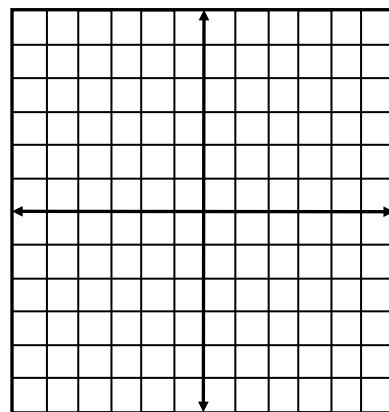
(c) $y = \underline{\hspace{2cm}}$

- *19. (a) Write the function $y = x^2 + 10x + 27$ in completed square form.
(b) Find the coordinates of the vertex and the equation for the axis of symmetry.
(c) Sketch the curve.



20. Graph the following system of inequalities:

$$\begin{aligned} 2x + 5y &< 10 \\ y &\geq 3x - 2 \end{aligned}$$



Is $(-2, 1)$ a solution to the system?

21. Find the values of x and y .

