

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Name: _____

Gaithersburg High School Summer Review Packet

Honors Algebra 2, Algebra 2, Bridge to Algebra 2, Quantitative Literacy

The problems in this packet are designed to help you review topics from previous mathematics course. When you do the problems, show all your work that leads you to the solution. **The packet is due by the end of the first week!!!**

Solve each by factoring- remember to get the equation = 0 first

$x^2 - 6x = 0$	$x^2 - 3x = 10$
$x^2 = 16$	$x^2 = 4x + 32$

Solve each by quadratic formula – remember

$x^2 + 5x - 1 = 0$	$x^2 + 10x = 9$
--------------------	-----------------

Write the equation of each in $y = mx + b$ form

$4x - 6y = 12$	$8x + 2y = 6$
----------------	---------------

Solve for x:

1) $-4(3 - x) = 8$

2) $3x - 2(x + 1) = 0$

Solve the system of equations:

3) $-2x + y = 8$
 $y = -3x - 2$

Factor each of the following polynomials:

4) $x^2 - x - 72$

5) $10m^3n^2 - 15m^2n$

6) $x^2 + 12x + 36$

7) $x^2 - 64$

8) $a^2 - 10a + 24$

9) $3x^2 + 18x + 27$

Solve the following quadratic equations:

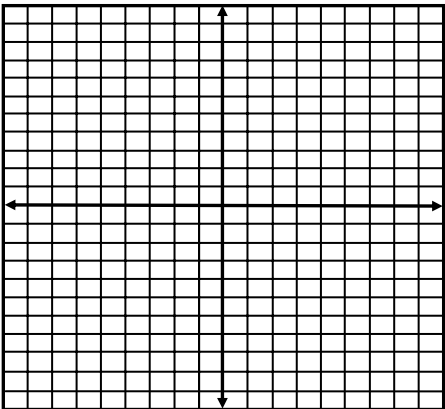
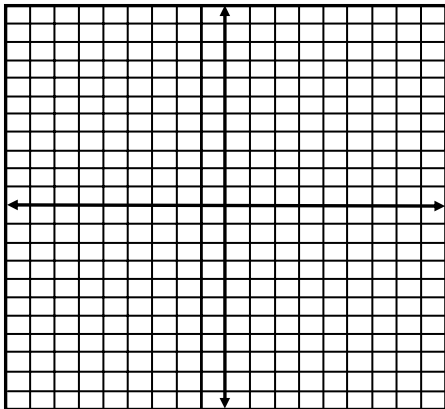
10) $(x + 1)(x + 3) = 0$

11) $p^2 + 6p = 0$

Simplify each of the following:

12) $(-3x^2 + 4x - 7) + (2x^2 - 7x + 8)$	13) $(-4a^3 + 2a^2 - a - 7) - (3a^3 - 2a^2 - a + 8)$
14) $(x + 7)(x + 5)$	15) $-xy^3(x - 2y)$
16) $(15a^4b^2c)^0$	17) $(8a^3b^2)(2a^4b^5)$
18) $\frac{(3x^2y)^3}{6x^{-2}y^5}$	19) $(x + 6)^2$

Graph each of the following:

12) $y = -\frac{3}{4}x + 4$ 	21) $y = -3x$ 
--	---

Given the following matrices, $A = \begin{bmatrix} 6 & -3 \\ 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} 5 & 6 \\ 2 & -1 \end{bmatrix}$, determine:

22) $A + B$	23) $A - B$	24) $-2C$
-------------	-------------	-----------

Answer the following questions concerning **linear** equations

25) Determine the slope of the line containing the points (6, -2) and (-1, 5).	26) Determine the equation for a line with the slope of $\frac{1}{2}$ and y-intercept at (0, -3)
--	--

Perform the given operations with fractions. Do not use a calculator. Show all work and simplify your final answer.

27) $\frac{1}{2} + \frac{1}{4}$	28) $2\left(\frac{3}{4}\right)$	29) $\frac{3}{4} - \frac{5}{7}$
30) $\frac{17}{5} + \frac{2}{10}$	31) $\frac{1}{x} + \frac{5}{x}$	32) $\frac{5}{2} \cdot \frac{1}{4}$
33) $\frac{2}{3} \div 8$	34) $\sqrt{\frac{2}{3}} + 5$	35) $\left(\frac{5}{6} + \frac{2}{10}\right) - 2\left(\frac{1}{4}\right)$