

Name \_\_\_\_\_

## Honors Algebra II Summer Packet

**Welcome to Honors Algebra II!** Based on your performance in Algebra I, Geometry, and/or the results of the placement test, you have been selected to take Honors Algebra II next school year. This course assumes that you have mastered the core skills of Algebra I. We will use these skills to solve problems in Algebra II over the next school year. If you feel that you have been placed incorrectly, please contact [oa@jcarroll.org](mailto:oa@jcarroll.org) to update your roster.

To keep your Algebra I skills fresh over the summer, I have prepared a review packet for you to complete. It is due on the FIRST day of school! I expect that all problems will be attempted. If you do not know who to solve a certain type of problem, please go to Khan Academy ([www.khanacademy.org](http://www.khanacademy.org)) which provides online tutorials, demonstrations, and step-by-step practice problems. There will be a quiz on these types of problems during the second week of school.

I look forward to meeting and working with all of you next school year. Please email me with any questions ([evolpe@jcarroll.org](mailto:evolpe@jcarroll.org))

Sincerely,  
Mrs. Volpe

*Please Note:* ALL students registered for Honors Algebra II are required to complete this summer packet, regardless of the teacher assigned on their roster.

**Directions:** Complete the following problems on loose-leaf paper and attach it to the back of the packet.

Simplify the following using order of operations:

1.  $3(2 + 4) - 2(7 - 1)$

2.  $26 - (17 - 8 \div 2)$

3.  $12 - 4 * 2 + (-3)^2$

4.  $5^2 - 6(2 - (-1))^2$

5.  $\frac{7*(9-3)^2}{12}$

6.  $\frac{7}{15} + \frac{4}{15} - \frac{2}{15}$

7.  $\frac{8}{9} - \frac{3}{4}$

8.  $1\frac{1}{2} + 2\frac{3}{4}$

9.  $5\left(\frac{2}{7}\right)$

10.  $\left(-\frac{3}{4}\right)\left(-\frac{1}{9}\right)\left(\frac{6}{5}\right)$

11.  $1\frac{1}{2} * 2\frac{2}{3}$

12.  $\frac{6}{7} \div \frac{4}{5}$

Simplify by combining like terms:

13.  $4x^2(7x + 5)$

14.  $(2x - 5)(2x + 5)$

15.  $(2x^3 + 2x^2 - x + 16) - (5x^3 + 3x - 3)$

16.  $4y(2 - y) + 3y^2$

17.  $\frac{30x^2 + 20x - 10}{-5}$

Solve the following functions for the given variable:

18.  $8x - 2 = -9 + 7x$

19.  $m - 2 = 5m + 3m - 8$

20.  $12 = -2(2x + 5)$

21.  $3n - 5 = -8(6n + 1)$

22. Write the equation of the line in slope-intercept form that goes through the point (3,1) and has a slope of  $\frac{-2}{3}$ .

23. Graph the following lines:

a.  $2x + y = -4$

b.  $x = -5$

c.  $y > \frac{3}{5}x - 4$

d.  $y = -2|x + 3| + 2$

24. Solve the following systems of equations using any method

a.  $y = 3x - 4$   
 $y = -\frac{1}{2}x + 3$

b.  $5x - 3y = 22$   
 $-4x + y = -19$

25. Solve the following quadratic functions using any method.

a.  $x^2 + 4x - 21 = 0$   
b.  $3x^2 - 32x = -45$   
c.  $2x^2 - 50 = 0$   
d.  $2x^4 - 162 = 0$

Simplify the following using exponent properties:

26.  $5^4 * 5^{-1}$

27.  $((-2)^3)^2$

28.  $x^2x^5$

29.  $(x^2y^3)^2$

30.  $(x^4y^3)(x^{-5}y^3)$

31.  $\sqrt{75x^3}$

