

# Joel Barlow High School

Serving the Towns of Easton and Redding, Connecticut  
*Dedicated to Academic Excellence and Moral Leadership*

Algebra I Skills Review  
For Students Entering Advanced or Honors Geometry  
June 1, 2010

Dear Student:

Enclosed is an Algebra I Skills Review packet prepared by the math teachers at JBHS.

At the beginning of the school year at Barlow, all students taking Geometry will be given an Algebra I Skills test to assess the skills necessary to be successful in Geometry and Algebra II the subsequent year.

It is important that students completing Algebra 1 in middle school be placed in an appropriate math level at the high school based on their mastery of prerequisite skills. Teachers will contact the guidance counselors and parents of students who receive very low scores on the test to discuss the suitability of course placement for that student. Correct placement in freshmen year is critical to the success of a four-year math sequence. Mastery of the concepts of Algebra is critical to success in all subsequent math courses.

Calculators will be used extensively throughout the course, although there may be some activities and assessments that are done without calculators. The TI-84+ graphing calculator is the calculator recommended if purchasing a new calculator for JBHS math courses. Although calculators are available for use during class time, students will need a graphing calculator to complete homework assignments. Please keep your manual when you buy your calculator.

Complete the packet of problems in preparation for the skills test. Have a nice summer. See you in the Fall.



Frederick Barna  
Instructional Leader: Mathematics



Charles Huot  
Instructional Leader: Mathematics

Alg 1 Basic Skill Cvrpg 07-08



Algebra I - Basic Skills  
Summer Review Packet  
For Students Entering Advanced or Honors Geometry  
Revised 2007

Solve the following equations. Round answers to hundredths, if necessary.  
Complete solutions can be found at [www.er9.org/jbhs](http://www.er9.org/jbhs)

Part I - Solving Equations: Solve for x

1.  $7x + 5 = -30$

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2.  $3x + 4 = 7x - 11$

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3.  $2(5x + 3) = -4(2x - 7)$

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4.  $\frac{7}{x} = \frac{5}{2}$

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5.  $5|x| - 4 = 26$

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

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7.  $4x^2 + 3 = 17$

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8.  $2\sqrt{x} - 1 = 6$

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9. Solve  $x^2 + 5x - 14 = 0$  by factoring.

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10. Solve  $3x^2 = 2x + 1$  using The Quadratic Formula

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11. If  $bx + cy = r$  : Solve for y:

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Part II - Equations of lines:

12. Write an equation of a line given:

a) Slope =  $-\frac{3}{4}$ , y - intercept = (0,6)

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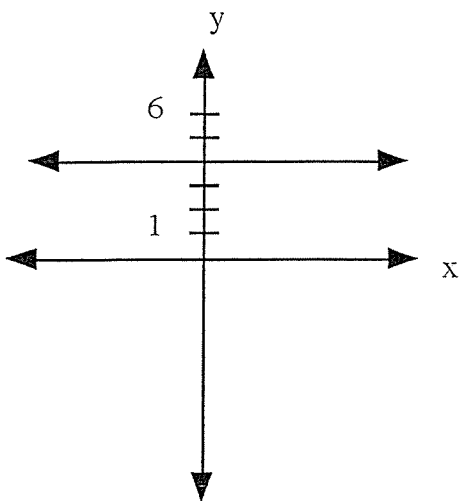
b) Slope =  $\frac{2}{7}$  and passes through the point (3,7)

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c) Passes through the points  $(-4, -5)$  and  $(3, 7)$

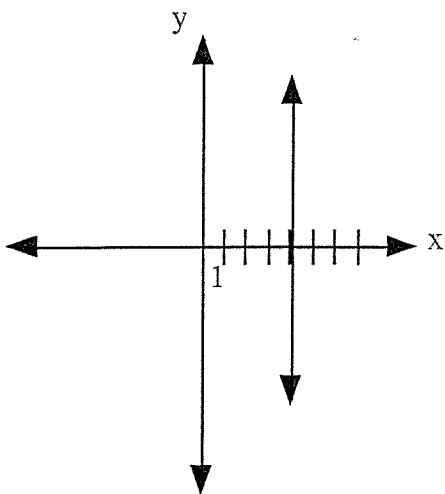
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d)



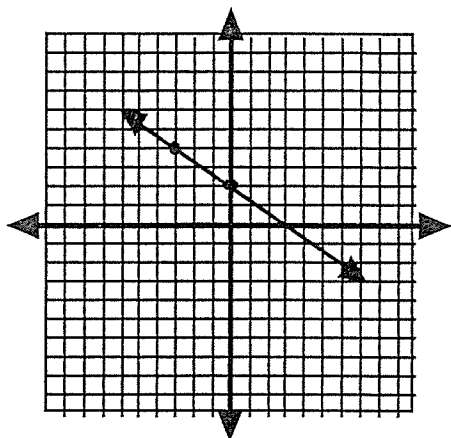
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e)



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f)



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Part III - Perform the indicated operations and simplify:

13.  $-5x^2 + 9x + 3x^2 - 12x$

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14.  $-2(-5x + 3) + 4(3x - 2)$

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15.  $\frac{15x^{12}}{5x^7}$

\_\_\_\_\_

16.  $(3x^4)^2$

\_\_\_\_\_

17.  $(3x^4y)(5x^3y^5)$

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18.  $2x^{-3}$

\_\_\_\_\_

19.  $(2x)^{-3}$

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## Part IV - Fun Stuff:

20. Solve the System:

$$\begin{aligned} 3x + 2y &= -4 \\ x - 5y &= 27 \end{aligned}$$

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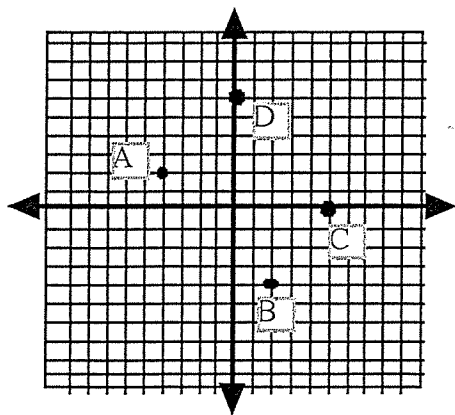
21. Solve for x:  $-5x + 7 < 37$ 

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22. Find the value of  $b^2 - 4ac$   
IF  $b = -3$ ,  $a = 2$ , and  $c = -5$ 

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23. Give the coordinates of the following points:



A \_\_\_\_\_

B \_\_\_\_\_

C \_\_\_\_\_

D \_\_\_\_\_

24. Factor the following:

a)  $18x + 12$

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b)  $x^2 - 25$

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c)  $x^2 + 10x + 21$

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25. Simplify using properties of square roots. If applicable, rationalize.

a)  $\sqrt{18}$

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b)  $\sqrt{50} + \sqrt{32}$

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c)  $\sqrt{7} \cdot \sqrt{6}$

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d)  $\frac{3}{4\sqrt{2}}$

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26. Moose weighs 96 pounds and is gaining weight at a rate of 5 pounds per month. His best friend Tiny weighs 450 pounds and is losing weight at a rate of 7 pounds per month.

a) How much will Moose weigh in 15 months?

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b) How much will Tiny weigh in 11 months?

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c) Write an equation which gives Tiny's weight,  $w$ , in  $m$  months

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d) Write an equation which gives Moose's weight,  $w$ , in  $m$  months

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e) Write an equation which says they are the same weight.

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f) Solve your equation to determine when they are the same weight.

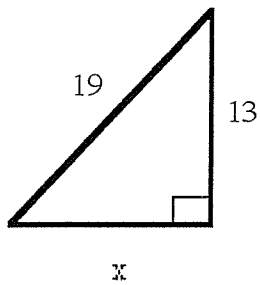
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27. The population of Lower Slobbovia is 75,002 and is decreasing at a rate of 3% per year.

a) What will be the population after 10 years? \_\_\_\_\_

b) About how long will it take before the population is below 50,000? \_\_\_\_\_

28. Find  $x$



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Answer Key

1.  $x = -5$

2.  $x = 3.75$

3.  $x = 1.22$

4.  $x = 2.8$

5.  $x = 6$  or  $-6$

6.  $x = 4.29$

7.  $x = 1.87$  or  $x = -1.87$

8.  $x = 12.25$

9.  $x = 2, -7$

10.  $x = 1$  or  $x = \frac{-1}{3}$

11.  $y = \frac{r - bx}{c}$

12 a)  $y = -\frac{3}{4}x + 6$

b)  $y - 7 = \frac{2}{7}(x - 3)$  or  $y = \frac{2}{7}x + \frac{43}{7}$

c)  $y - 7 = \frac{12}{7}(x - 3)$  or  $y + 5 = \frac{12}{7}(x + 4)$

d)  $y = 4$

e)  $x = 4$

f)  $y = -\frac{2}{3}x + 2$

13.  $-2x^2 + -3x$

14.  $22x - 14$

15.  $3x^5$

16.  $9x^8$

17.  $15x^7y^6$

18.  $\frac{2}{x^3}$

19.  $\frac{1}{8x^3}$

20.  $x = 2, y = -5$

21.  $x > -6$

22. 49

23a)  $(-4, 2)$

23b)  $(2, -4)$

23c)  $(5, 0)$

23d)  $(0, 6)$

24a)  $6(3x + 2)$

24 b)  $(x + 5)(x - 5)$

24 c)  $(x + 7)(x + 3)$

25 a)  $3\sqrt{2}$

25 b)  $9\sqrt{2}$

25 c)  $\sqrt{42}$

25d)  $\frac{3\sqrt{2}}{8}$

26a) 171 lbs

26b) 373 lbs

26c)  $w = 450 - 7m$

26d)  $w = 96 + 5m$

26e)  $450 - 7m = 96 + 5m$  or  
 $450 = 96 + 12m$

26f) 29.5 months (30 months)

27a) 55,308.28

27b) 13 years (reasonable guess and check)

28. 13.86

