Algebra I Skills Review
For Students Entering Geometry and Algebra II

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 and Algebra II will be given an Algebra I Skills test to assess the skills necessary to be successful.

It is important that students 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.

Calculators are used extensively throughout each math course, although there may be some activities and assessments that are done without calculators. The TI-84+ graphing calculator is the calculator recommended if purshasing a new calculator for JBHS math courses. Students will need a graphing calculator for in-class activites and 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.

Sincerely,

Frederick Barna
Instructional Leader: Mathematics

Charles Huot
Instructional Leader: Mathematics

Algebra I - Basic Skills
Summer Review Packet

Solve the following equations. Round answers to hundredths, if necessary.
Complete solutions can be found at www.er9.org/jbhs

Part I - Solving Equations: Solve for x

1. $7x + 5 = -30$ _____

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

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

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

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

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

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

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

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

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

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

Part II - Equations of lines:

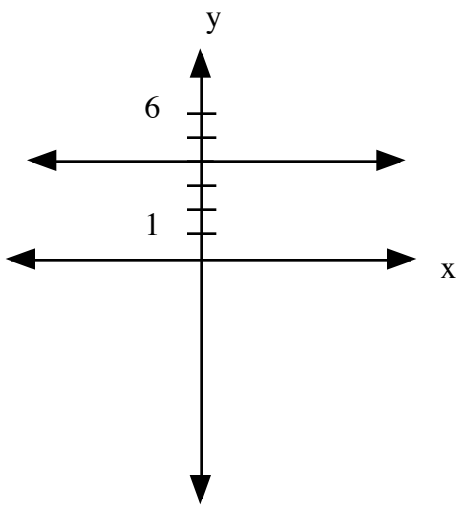
12. Write an equation of a line given:

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

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

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

d)



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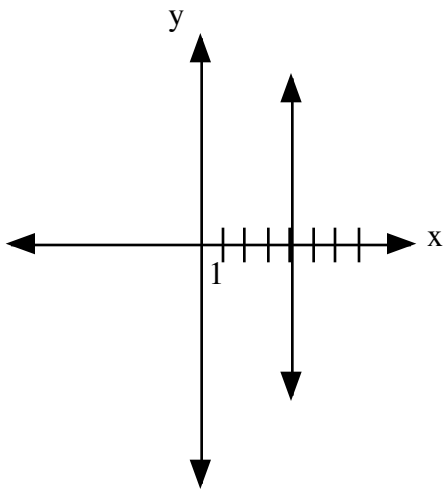

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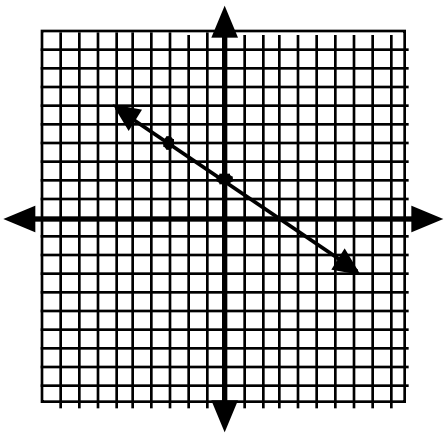

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Part III - Perform the indicated operations and simplify:

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

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

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

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

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

18. $2x^{-3}$ _____

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

Part IV - Fun Stuff:

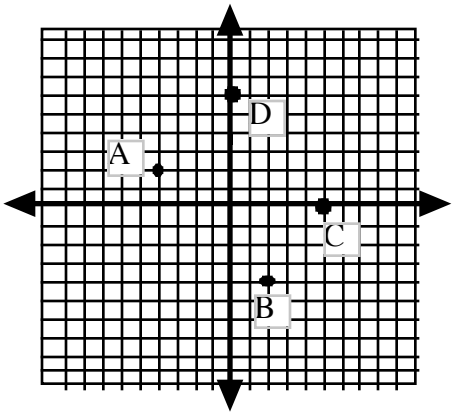
20. Solve the System: _____

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

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

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

23. Give the coordinates of the following points:



A _____

B _____

C _____

D _____

24. Factor the following:

a) $18x + 12$ _____

b) $x^2 - 25$ _____

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

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

a) $\sqrt{18}$ _____

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

c) $\sqrt{7} \bullet \sqrt{6}$ _____

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

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? _____

b) How much will Tiny weigh in 11 months? _____

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

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

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

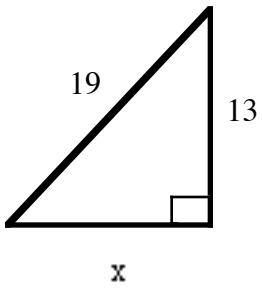
f) Solve your equation to determine when they are the same weight. _____

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

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