

Ponaganset Middle School
Incoming 8th Grade Summer Algebra Work

This summer's math work will be a review of basic algebra skills that will be used to begin the first algebra unit. Incoming 8th grade algebra students should be fluent in the multiplication tables up through the 12's table. They should also be fluent with addition, subtraction, multiplication, and division of whole numbers, decimals, and fractions including proficiency with conversions between the decimal, fraction, and percent names of a number. Order of operations should be routinely followed. Calculators should NOT be used as we are trying to increase our students' proficiency and number sense.

This summer work should be completed by Thursday August 30th and will be collected on the first day of class. A quiz grade will be given based on completeness of work shown and correct answers of selected problems. Additionally the summer packet will count as part of the homework grade. Homework in algebra counts as 15% of the quarter grade, therefore this summer packet will count for approximately 10% of the first quarter's homework grade. Additionally, a quiz will be given after a brief review of the summer work. This material forms the basis for algebra and it is vital that it be completed.

All work should be done on the packet. Work can be done in a notebook if each problem is labeled and answers are written in the packet with work stapled to the back of the packet.

The following websites are helpful for both practice and enrichment.

Web Resources

<http://www.khanacademy.org/exercisedashboard>

<http://www.learnzillion.com/lessons>

Lessons will be added to Canvas and the packet will be located on the school website and on Canvas.

Name: _____

PART ONE: Review

a) Evaluate using the order of operations

1.) $(-7 + 4) \div 3 + 10 \div 5 + 1$	2.) $30 - 3(7 - 4)^2$	3.) $\frac{4(3+1)-1}{4+1} - 2$
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b) Evaluate the following expressions if $u = 0, v = 5, w = 2, x = 1, y = 3,$ and $z = 12.$

4.) $3u(z - 2y)$	5.) $8w - x\left(\frac{z}{y+1}\right)$
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c) Translate each phrase into a variable expression, equation, or inequality.

6.) Four more than one third a number.	7.) Five less than three times a number
8.) The product of three and a number is at most 21.	9.) The sum of seven and three times a number is at least 12.

d) Simplify the following expressions completely. Remember to distribute to both terms!

10.) $9(x + 3y)$	11.) $-8(3m - 2)$	12.) $6(7d - a)$
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e) Simplify the following expressions completely. Remember to combine like terms!

13.) $-x + 6 + 5x - 3$	14.) $4 - x - 7 - 5x$	15.) $x - 5y + 3x - 3y - x$
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f) Represent each phrase as a variable expression. Then SIMPLIFY the expression completely.

16.) Five times the sum of a and b , decreased by three times b .

17.) Six more than the sum of -11 and $5y$, increased by one half the difference of $4y$ and 2 .

18.) An isosceles triangle has two equal sides and a third side of 15 .
If the perimeter is 50 , write and solve an EQUATION
that represents this problem.

19.) Translate the problem into an equation. (Drawing a sketch may help.)
The perimeter of an equilateral triangle is 45 cm.

g.) Simplify the following expressions completely. Remember to distribute to both terms and to combine all like terms.

20.) $7 + 4x + 3y - 13$	21.) $3a(-7b)$	22.) $(-6 + 14) + (-4)$
23.) $8 + 3x - 11 + 4x$	24.) $[(-8) + 15] + (-9)$	25.) $55 - 215 - (-120)$
26.) $-13 - 8 - [-6 - (-15)]$	27.) $n + 8 - (-4 + n) - n$	28.) $7 + 3(5x - 8)$
29.) $(26v - 35v) - (-13v)$	30.) $5(4x) - 6(-3x)$	31.) $85 - 25 + (-40) - 30$
32.) $17a + (-6) + 5 - 3a$	33.) $36\left(\frac{1}{3} - \frac{1}{9}\right)$	34.) $22\left(3\frac{1}{11}\right)$
35.) $-\frac{250m}{25m}, m \neq 0$	36.) $-11 \cdot \frac{x}{11}$	37.) $(1.25)(22) - (0.25)(22)$

38.) $37n + 15n$	39.) $27c - 31c$	40.) $7(x + 5) + 1$
41.) $-5y + 14 + 8y - 7$	42.) $\left(-\frac{1}{9}\right)(9)$	43.) $3(a + 2b) + 4(3a - 5b)$
44.) $8(x + y) + 7(2x + 3y)$	45.) $\frac{2}{3}m + \frac{3}{4}n - \frac{1}{3}m - \frac{1}{4}n$	46.) $8(t - u) + 3(3t - u)$
47.) $5(x - y) - (3x - y)$	48.) $-4(x - 6y) + x - 2y$	49.) $8x - 5 + 6x - (x + 1)$
50.) $(-3a)(4b)$	51.) $3x + 5 - 2(x - 3)$	52.) $\frac{1}{5}(-35)$
53.) $(-5)(2x - 3)$	54.) $-3(2x - 1) + 5(3 - 4x)$	55.) $(-a)(-b)(-c)(-d)(-e)$

56.) $-5(-x + 3) + 10$	57.) $-3(-5 - y) + 2(3 - y)$	58.) $\frac{625a}{25}$
59.) $5(2x - 3y) + 8(-2y - x) - 4y$	60.) $3(6x + 3) + 7(4 - x) + 9 - 6x$	

PART TWO: Solving Equations

61.) $a - 9 = 13$	62.) $-54 + m = 82$	63.) $w - 83 = -100$
64.) $-5.1 + a = -6.6$	65.) $-x + 6 = 5$	66.) $3 - (4 + r) = 7$
67.) $400 = -25h$	68.) $-\frac{2}{5}n = 30$	69.) $16a = 512$

70.) $-\frac{1}{12}p = -12$	71.) $1.5x = -9$	72.) $\frac{3}{7}x = -4\frac{2}{7}$
73.) $4x + 7 = 35$	74.) $17 + 6p = -73$	75.) $-\frac{v}{5} + 2 = -6$
76.) $5y + 3 = 18$	77.) $3y - 4 = 14$	78.) $\frac{1}{4}a - 2 = -3$
79.) $-\frac{1}{2}b + 9 = 5$	80.) $-6 + \frac{y}{5} = 5$	81.) $-8y - 11 = 13$
82.) $-9x + 5x = 40$	83.) $\frac{11+p}{2} = -47$	84.) $8n + 6n = -56$

85.) $x - 7 - 4x = -25$	86.) $4(g + 7) = -64$	87.) $-\frac{3}{4}x + 5 = 0$
88.) $k + 4 \div 0.2 = 5$	89.) $\frac{3}{68} = r + \frac{2}{3}$	90.) $15 + 1.5x = 24$
91.) $8x - 6x - 25 = -35$	92.) $-4n - 8n + 17 = 23$	93.) $\frac{2}{3}h - \frac{1}{3}h + 11 = 8$

PART THREE: Word Problems

a) Write an equation based on the facts of each problem, then solve. Show ALL work!

94.) Five more than a number is fifty-seven. What is the number?

95.) Yolanda paid \$108 for 6 tickets to a hockey game. How much did each ticket cost?

96.) The sum of 17 and twice a number is eighty-seven. Find the number

97.) You clean a community park for 6.5 hours. You earn \$42.25. How much do you earn per hour?

98.) When one half of a number is decreased by 13, the result is 62. Find the number.

99.) The perimeter of a rectangle is 56 and its length is 8 more than the width. Find the dimensions.

100.) Without solving, determine whether the solution of $-2x = -15$ is *greater than or less than* -15 . Explain.

