Name:

Kennedy High School
Summer 2021 Math Packet
For Rising Quantitative Literacy Students

This packet is an optional review of the skills that will help you be successful in Statistics in the fall. By completing this packet over the summer, you will keep your brain mathematically active and you will also be able to identify skills that you need to strengthen. If you struggle with any of the exercises, please seek help from a friend, parent, sibling, book, or online resource. Enjoy your math review and we look forward to meeting you in August!

I. Factors. Write the factor pairs for each number.

http://www.mathsisfun.com/greatest-common-factor.html

> ***Example***:
> Give the factor pairs of 12:
> ***Answer:*** 1 x 12
> 2 x 6
> 3 x 4

a) 48 b) 72

c) 126 d) 39

e) 53 f) 121

II. Greatest Common Factor (GCF). Find the GCF for each pair of factors.

a) 12 and 20 b) 54 and 81 c) 15 and 70

d) 27 and 72 e) 18 and 63 f) 169 and 39

III. Order of Operations and Integer Operations. Simplify each expression.

http://www.mathsisfun.com/operation-order-pemdas.html

a) 3 – 4 b) -14 – 8 c) - 7 + 3 d) -4 + 9

e) -1 – -7 f) -2 + -9 g) -4 • -2 h) -54 ÷ 9

i) $15 \bullet -2$ j) $-32 \div -4$ k) $27 \div 3 + 4^2$ l) $2[5 + 3(14 - 6)]$

m) $24 \div 8 + 5 \bullet 6$ n) $\frac{(5-2)^2 + 9}{6}$ o) $30 - 4 \bullet 5 + 7$ p) $18 \div [(8)(2) - 7]$

IV. Fractions. Perform the indicated operation. Make sure final answer is simplified.

http://www.mathsisfun.com/fractions.html

a) $\frac{2}{5} + \frac{1}{5}$ b) $\frac{3}{4} + \frac{2}{3}$ c) $\frac{1}{2} - \frac{5}{7}$ d) $\frac{-12}{7} - \frac{3}{14}$

e) $\frac{5}{8} \bullet \frac{4}{10}$ f) $\frac{3}{4} \bullet 8$ g) $\frac{1}{3} \div \frac{1}{2}$ h) $\frac{2}{9} \div \frac{5}{3}$

V. Combining Like Terms and Distributive Property. Simplify.

http://www.glencoe.com/sec/math/brainpops/00112041/00112041.html

http://www.themathpage.com/alg/like-terms.htm

a) $2 + 3y - 5y$ b) $9x + 6 - 5x$ c) $15n + 2n - 8n$

d) $4x^2 - 5x^2 + 7x$ e) $3p - 7p^2 + 4p - 2p^2$ f) $-9 - 8x - 4 - 7x$

g) $3(y + 6)$ h) $-4(2x + 7y)$ i) $(4r - 5)(-2)$

j) $3x + 7(x - 4)$ k) $2 - 7(3 - 5x)$ l) $-3(x + 1) - 2$

m) $-2(x + 5) + 3(4x - 9)$ n) $9(3x + 4) - 5(3 - 2x)$ o) $7(w + 3y) - 6(2w + 3y)$

VI. Solving one-step equations. Solve each equation.

http://www.montgomeryschoolsmd.org/departments/itv/mathdude/MD_Algebra1_1-2.shtm

a) $z - 7 = -3$ b) $p + -7 = 9$ c) $8 + q = -4$ d) $3a = -27$

e) $-5y = 23$ f) $\frac{w}{3} = 8$ g) $\frac{x}{-6} = 9$ h) $\frac{1}{5}x = 12$

VII. Translating Verbal Phrases

Hint: More, sum, plus = addition	*Difference, less, minus = subtraction*
Product, time, multiplied = multiplication	*Quotient, divided by = division*
is = Equal to	

a) The difference of 7 and 10 times a number

b) 11 plus the quotient of a number and 7

c) Two less than the sum of six and a number

d) Half of a given number

e) The sum of 6 and a number

f) 3 less than 4 times a given number

g) The sum of 6 and a number is 18.

h) Sixteen more than a number is 36.

i) 12 more than a number

j) One number decreased by the sum of 10 and the square of another number

VIII. Inequalities. Graph the inequality on a number line.

http://www.mathsisfun.com/algebra/inequality.html

$<$ → less than, open circle $\leq$ → less than or equal to, closed circle
$>$ → greater than, open circle $\geq$ → greater than or equal to, closed circle

a) $x \geq 3$ b) $y \leq -8$ c) $5 > w$

d) $k < -0.5$ e) $\frac{1}{3} < q$ f) $-\frac{13}{4} \geq w$

IX. Rounding. Round each number to the nearest hundredth.

http://www.mathsisfun.com/rounding-numbers.html

a) 15.7895 b) -2.5654 c) $\frac{2}{3}$ d) $4\frac{2}{7}$

e) 4.99762 f) $1\frac{1}{6}$ g) -3.89254

X. Operations on Numbers

A. Absolute Value http://www.mathsisfun.com/numbers/absolute-value.html

Simplify. Evaluate.

1. $|7| =$ _____ 2. $|-41| =$ _____ 3. $|-x| + 1\frac{1}{2}$ if $x = \frac{1}{2}$ _____

4. $14 - |c|$ if $c = -10$ _____

B. Rational Numbers http://www.mathsisfun.com/rational-numbers.html

Simplify.

5. $84+(-90)=$_____ 6. $\frac{-12}{30}=$_____ 7. $-\frac{3}{4}+\frac{5}{4}=$_____

8. $-\frac{2}{3}-\frac{1}{4}=$_____ 9. $-\frac{1}{5}-\left(-\frac{4}{7}\right)=$_____ 10. $\left(\frac{2}{3}\right)\left(-\frac{15}{16}\right)=$_____

11. $\left(-\frac{1}{2}\right)\left(-\frac{1}{3}\right)\left(-\frac{3}{4}\right)=$_____ 12. $\frac{-6(-6+2)}{-10+(-2)}=$_____ 13. $\left(-\frac{3}{4}\right)\left(\frac{1}{2}\right)=$_____

14. $-\frac{15}{32}\div\left(-\frac{3}{10}\right)=$_____ 15. $\frac{57y-12}{3}=$_____

Evaluate.

16. $-3cd$ if $c=\frac{1}{2}, d=-\frac{2}{3}$ _____ 17. $c^2\left(-\frac{1}{3}\right)$ if $c=-6$ _____

C. Radicals http://www.themathpage.com/alg/simplify-radicals.htm

Simplify.

18. $\sqrt{64}=$_____ 19. $-\sqrt{81}=$_____ 20. $-\sqrt{\frac{25}{16}}=$_____

21. $\sqrt{72}=$_____ 22. $\sqrt{54}=$_____ 23. $\sqrt{75}=$_____

D. Exponents http://www.themathpage.com/alg/algebraic-expressions.htm#powers

Simplify.

24. $7^2=$_____ 25. $(-4)^2=$_____ 26. $-5^2=$_____ 27. $\left(-\frac{3}{4}\right)^2=$_____

E. Order of Operations http://www.themathpage.com/alg/algebraic-expressions.htm#order

Simplify each expression using PEMDAS.

28. $\left[(12-14)-10^2+2\right]\div 5^2$ _____

29. $\dfrac{50-(8-9)+\dfrac{12}{4}}{4^2-7}$ _____

Evaluate.

30. b^2-4ac if $a=3, b=-5, c=-1$ _____

31. $mx+b$ if $m=-\dfrac{2}{5}, b=-\dfrac{3}{10}, x=-1$ _____

XI. Linear Equations in One Variable http://www.themathpage.com/alg/equations.htm

Solve each linear equation. A solution is a value for the variable that makes the equation true. You should check each solution to verify that it makes the left side of the equation equal to the right side.

32. $8-5w=-37$ _____

33. $\dfrac{b+1}{3}=2$ _____

34. $\dfrac{5}{2}c-8=-3$ _____

35. $-\dfrac{h}{3}-4=13$ _____

36. $2.5g+0.45=0.95$ _____

37. $8+4k=-10+k$ _____

38. $\dfrac{2}{3}n+8=\dfrac{1}{2}n+2$ _____

39. $-7(2d-4)=5(6-2d)$ _____

40. $\dfrac{1}{9}(2m-16)=\dfrac{1}{3}(2m+4)$ _____

41. $2(a+8)+7=5(a+2)-3a-19$ _____

XII. Power Rules

http://www.themathpage.com/alg/exponents.htm
http://www.themathpage.com/alg/negative-exponents.htm

Simplify.

65. $(-6)^0 =$ _____

66. $c^4 \cdot c^2 \cdot c =$ _____

67. $(-4x^3)(-5x^7) =$ _____

68. $(n^2)^5 =$ _____

69. $(7x^6)^2 =$ _____

70. $(-5n)^3 =$ _____

71. $(4a^3b)^2(b^3) =$ _____

72. $(-18m^2n)^2\left(\frac{1}{6}mn^2\right) =$ _____

73. $\frac{6^5}{6^3} =$ _____

74. $\frac{-2y^7}{14y^5} =$ _____

75. $\frac{-6m}{15m^3} =$ _____

76. $\frac{x^5y^3}{xy^7} =$ _____

77. $\left(\frac{2}{5}\right)^3 =$ _____

78. $\left(-\frac{3}{7}\right)^2 =$ _____

79. $\left(\frac{4a^2b^3}{ab}\right)^2 =$ _____

80. $5^{-2} =$ _____

81. $(3x)^{-3} =$ _____

82. $\frac{g^{-7}}{g^4} =$ _____

83. $\left(\frac{5}{3}\right)^{-2} =$ _____

84. $\frac{15x^6y^{-8}}{5xy^{-11}} =$ _____

XIII. Representing Data

1. Create a stem-and-leaf plot, a box plot, and a dot plot for the following quiz scores.

25 10 11 25 13 26 32 27 10 20 15 25 15

Stem-and-leaf plot:

Box and Whiskers Plot:

Dot plot:

2. What are the following statistics for the data?

Mean: _____

Range: _____

First Quartile (Q1): _____

Median: _____

Third Quartile (Q3): _____

Mode: _____

Interquartile Range (IQR): _____