

ALGEBRA I SUMMER REVIEW WORK

SUMMER 2022

Because of the cumulative nature of math, you might have realized by now that you need to have mastered concepts and procedures before you can learn new ones. The problems you will be completing will help you review material from Pre-Algebra. These problems have been chosen because they represent concepts taught in the GDS eighth grade Algebra Essentials class.

We anticipate that this assignment should take you approximately 2 to 4 hours, depending on how well you remember this material. It is suggested that you not start this packet until August. However, give yourself plenty of time as you may need to review some material in order to successfully complete the packet.

This packet is due the first day full day of classes. We hope you will put an honest effort into this assignment so you can receive an accurate diagnosis of your strengths and weaknesses.

DIRECTIONS:

1. Show all work neatly and thoroughly below each problem. If you feel that the space provided does *not* give you enough room to show your work neatly, please use a separate sheet of paper.
2. Careful documentation of your work is extremely important. You should strive to clearly communicate your thought process.
3. Follow directions for each section carefully.
4. Do *not* use a calculator.

I pledge that the work on this assignment is my own and I abided by the directions for calculator usage.

*I also pledge that I will **NOT** discuss the contents of this evaluation with anyone else*

until it is reviewed and returned to me.

Sign Name: _____

Please print your name: _____

Please check the following:

I worked on this packet with a tutor. _____ yes _____ no

I. Simplify completely. Show your work as neatly and in as much detail as possible. Circle your answer.

1. $(40+7)-18$

2. $\frac{5 \cdot 3 + 5 \cdot 2^2}{9-2}$

3. $(24-3+9 \div 3) \div \left(8 \times \frac{1}{2}\right)$

4. $-8+7+(-9)+5$

5. $-[25+(-3)]+[-(-2+5)]$

6. $\frac{(-6+3)(-4)}{-5-1}$

7. $\frac{-5[(24 \div 8)-2]}{(21 \div 7)+2}$

8. $3-4(5-1)^2$

9. $3.4+(-2.1)+0+(-5.8)+(-7.2)$

10. $\left(-1\frac{1}{4}\right)\left(-2\frac{2}{3}\right)$

11. $-\frac{4}{5}-\left(-\frac{1}{3}\right)$

12. $\left(\frac{4}{5}\right)\left(-\frac{2}{3}\right)\left(-\frac{15}{7}\right)\left(\frac{1}{2}\right)$

$$13. -32 \div \frac{1}{6} \div 3 \div (-4)$$

$$14. 50 \div 5(8-3) + (2^3 - 1^2)^2$$

$$15. \frac{(-3.1)(0.02)}{-0.5}$$

$$16. -2x - 4(2x - 5)$$

$$17. 18 - 2x^2 + 7x + 5x^2 + 3 + x$$

$$18. 4p + 2pq - 7q + 11pq$$

$$19. -\frac{27}{0}$$

$$20. \frac{5}{12} + \left(-\frac{5}{8}\right)$$

$$21. 2\frac{2}{9} - 5\frac{1}{3} + 7\frac{5}{18}$$

$$22. 5\frac{7}{9} \div \left(-4\frac{2}{3}\right)$$

$$23. (-33)(0.001)$$

$$24. -0.36 \div (-0.9)$$

II. Evaluate given that $w = 6$, $x = -2$, $y = -1$, and $z = 3$. Show all work below. Circle your answer.

1. $x^2 + 2xy + y^2$

2. $\frac{wz}{xy^2}$

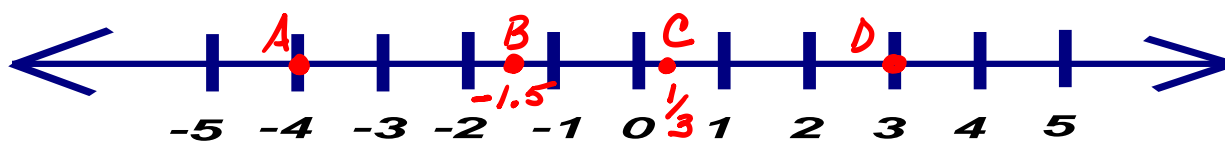
3. $\frac{w-z}{y^2-x}$

4. $-3x^2 + w \div z$

5. $\left(\frac{w}{z}\right)^2 - \left(\frac{x}{y}\right)^2$

6. $\frac{w^2 \div xz + x^3y}{x^2z}$

III. Given the number line below marked with letters A – D. Evaluate the following expressions. Show all work that leads to your answer.



1. $C - A$

2. $\frac{BD}{C}$

3. $\frac{B}{D - A}$

4. $D^3 \cdot C^2 + AB$

5. $C + B$

6. $(2B - D) \div 3C^2$

IV. Solve. Show your work as neatly and in as much detail as possible.

1. $2x - 8 = -2$

2. $\frac{3}{2}b = -27$

3. $-8 - y = 22 - 27$

4. $2x + 5 - 7x = 15$

5. $-2(3w - 7) = 35$

6. $5p + 2 - 3p = 8 + 4p - 6$

V. Translations: Write an expression, equation, or inequality for the following problems. **DO NOT SOLVE!!!** Read carefully!

1. Five more than some number n _____

2. One less than twice some number x _____

3. One half the sum of m and $2p$ _____

4. Two thirds the difference of five and some number b _____

5. The quotient when the total of a number c and fourteen is divided by six _____

VI. Review of Percent: $\frac{\text{is}}{\text{of}} = \frac{x}{100}$

1. What is 15% of 20?

2. 25% of what number is 6.5?

3. What % of 200 is 5?

$$\frac{\text{is}}{\text{of}} = \frac{x}{100}$$

$$\frac{?}{20} = \frac{15}{100}$$

$$20 \cdot 15 = 100?$$

$$300 = 100?$$

$$? = 3$$

$$\frac{\text{is}}{\text{of}} = \frac{x}{100}$$

$$\frac{6.5}{?} = \frac{25}{100}$$

$$6.5 \cdot 100 = 25?$$

$$650 = 25?$$

$$? = 26$$

26

4. 125% of what number is 7.5?

5. 274 is what percent of 411?

6. What is 250% of 300?

VII. Review of Miscellaneous Number Sense

List all the factors of the given numbers.

1. 8

2. 39

3. 20

4. 35

5. 24

6. 8

Find the greatest common factor (GCF) and least common multiple (LCM) for each set of numbers.

1. 60, 66

2. 44, 14

3. 13, 31

4. 4, 5, 24

5. 10, 16, 21

6. 8, 42

VIII. Review of Exponents

1. $\frac{(4^2)(2^{-1})}{(6^0)(3^{-2})}$

2. $\frac{-12a^4b^7}{-4ab^2}$

3. $9y^0$

4. $(2x^2y^6z)^0$

5. $\left(\frac{3}{6^{-1}}\right)^{-2}$

6. $(6x^{-3}y^3)^2$

7. $\frac{20m^8n^2p^3}{-10m^{10}n^2p^2}$

8. $\frac{3^{-2}a^{-3}b^3}{2^{-1}c^{-7}d^5}$

9. $\left(\frac{4x^2y^{-4}}{2x^{-5}y^9}\right)^2$

IX. Review of Linear Equations

1. The slope intercept form of a linear equation is $y = mx + b$. What do each of the variables represent?

2. Which of the following ordered pairs satisfies the given equation? $y = -x + 2$

$(-2, 3), (-1, 3), (0, 4), (1, -1), (2, 1)$

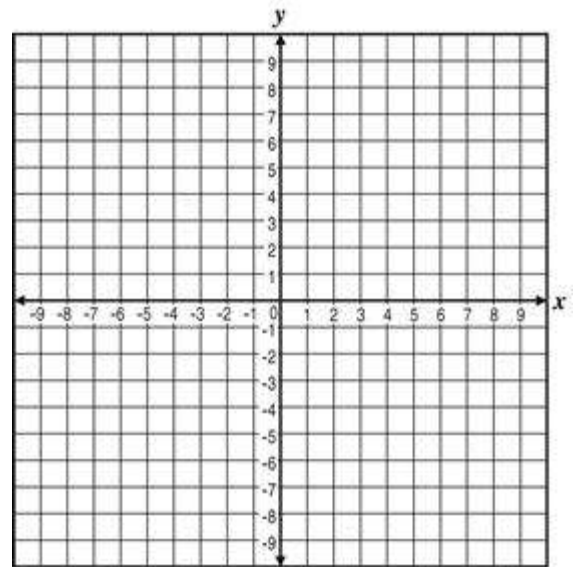
3. Identify the x and y intercepts of the following linear equation.

$$2x + 3y = 6$$

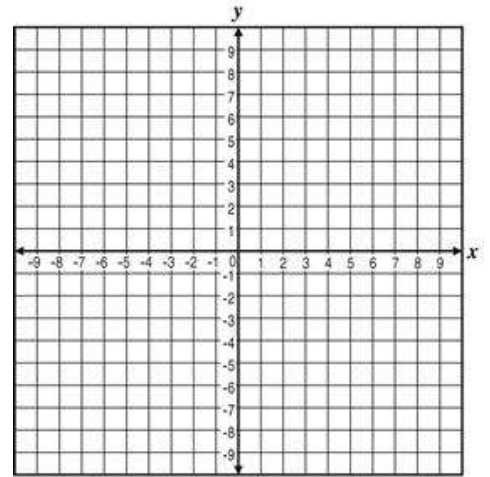
4. Use a table of values to graph the following equation on a coordinate plane.

$$y = -\frac{1}{2}x - 1$$

| X | Y | (x, y) |
|----|---|--------|
| -2 | | |
| 0 | | |
| 2 | | |



5. Graph $y = 2x + 2$



6. Write the equation in slope – intercept form, then graph.
 $2x - 4y = 8$

