

SUMMER ASSIGNMENT



You are taking Algebra 2 (5310) (please note there are two different Algebra 2 courses, make sure you look at the course number) in the fall. A mastery of and proficiency performing the following Algebra skills will be necessary for success in an Algebra 2 Course. Work on each problem in order. Copy the problem onto loose-leaf paper; show all work in a neat and organized manner. Box in your final answer. Complete this entire assignment and bring to class on the first day.

This assignment is mandatory and must be completed in neat and orderly manner. You will be given a proficiency test within the first week of school on the topics in this assignment. This test will be counted toward your first quarter grade. If you **demonstrate mastery on these topics you will be awarded a bonus point** on your first quarter average.

If you need assistance with a topic, try khanacademy.org for mini lessons.

NOTE: Make sure you are taking the 5310 course if doing this assignment. If you are taking Algebra 2 5320, there is a different summer assignment, please refer to the website.

Name: _____ Date: _____

Last Math Class Taken: _____

Teacher: _____

Algebra II Summer Assignment (Review of Arithmetic and Algebra I)

A. Give the greatest common factor(GCF) and least common multiple(LCM) of the pair of numbers.

1. 15, 25 2. 4, 7 3. 20, 6 4. 12, 9

B. Find the reciprocal of each number.

1. $\frac{2}{5}$ 2. $-\frac{1}{14}$ 3. 7 4. $6\frac{2}{5}$

C. Multiply or divide. Write the answer as a simple fraction or a mixed number in lowest terms.

1. $\frac{2}{3} \times \frac{4}{5}$ 2. $\frac{5}{8} \times \frac{4}{15}$ 3. $\frac{3}{5} \times 1\frac{2}{3}$ 4. $5\frac{1}{4} \times 1\frac{1}{7}$

5. $\frac{7}{8} \div \frac{3}{4}$ 6. $\frac{4}{5} \div \frac{2}{3}$ 7. $2\frac{1}{4} \div 1\frac{1}{3}$ 8. $3\frac{2}{5} \div 4$

D. Perform the indicated operation(s). You must find the LCD. Simplify the result.

1. $\frac{3}{8} + \frac{5}{13}$ 2. $\frac{7}{4} - \frac{1}{12}$ 3. $\frac{2}{5} - \frac{1}{3} - \frac{1}{6}$ 4. $\frac{8}{9} + \frac{2}{3} + \frac{1}{2}$

5. $\frac{1}{2} + \frac{1}{3} + \frac{1}{4}$ 6. $\frac{9}{11} - \frac{5}{3} - \frac{5}{6}$ 7. $-\frac{3}{12} + \frac{4}{10} - \frac{1}{5}$

8. $\frac{2}{8} - \frac{3}{4} + \frac{1}{2}$ 9. $\frac{7}{15} - \frac{4}{5} + \frac{2}{3}$ 10. $\frac{1}{2} - \frac{8}{10} + \frac{5}{4}$

11. $5\frac{1}{8} - 2\frac{3}{4}$ 12. $4\frac{3}{8} - 2\frac{5}{6}$ 13. $9\frac{2}{5} + 3\frac{1}{3}$ 14. $2\frac{1}{20} + 3\frac{3}{8}$

E. Solve the proportion. Hint: Cross products are equal in a proportion.

1. $\frac{5}{7} = \frac{a}{28}$ 2. $\frac{5}{4} = \frac{x}{10}$ 3. $\frac{3}{7} = \frac{9}{-b}$ 4. $\frac{60}{40} = \frac{12}{m}$ 5. $\frac{-3}{x} = \frac{40}{6}$

F. Write the percent as a decimal.

1. 63% 2. 7% 3. 125%

G. Find the answer.

1. What percent of 90 is 15?

2. 12 is what percent of 60?

3. 15 is what percent of 90?

4. What percent of 18 is 4.5

H. Evaluate the expression. Use the proper order of operations.

1. $3^3 - 12 \div 4$

2. $10^2 \div 4 + 6$

3. $10^2 \div (4 + 6)$

4. $\frac{9 \cdot 7^2}{5 + 8^2 - 6}$

5. $3 + 7(3.5 \div 5)$

6. $2 + 21 \div 3 - 6$

7. $50 \div (6^2 - 11) - 2$

I. Simplify the expression.

1. $-3 + 8$

2. $5 + (-7)$

3. $-4 + (-11)$

4. $-8 - 5$

5. $-4 + 13 + (-6)$

6. $15 + (-12) + (-4)$

7. $-2 + (-9) + 8$

8. $17 + (-5) + 15$

9. $4.1 - 6.3$

10. $-3 - (-7)$

11. $-6 + (-3) - 4$

12. $-15 + 4 - 12$

12. $(-6)(-7)$

13. $3(-8)(-2)$

14. $(-8)(-4x)$

15. $6(y + 5)$

16. $4(a - 6)$

17. $-k(7 + k)$

18. $s(s - s^2)$

19. $3x + 7x$

20. $82p - (-29p)$

33. $6 - 4t - 4$

21. $5 + 4(x - 2)$

22. $8x^2 + 5 - 2x^2$

23. $2x(7 - x) + 3x^2$

24. $\frac{2}{3}x + \left(-\frac{1}{6}\right)x$

25. $18 \div (2)$

26. $-48 \div 12$

27. $16 \div \left(-\frac{4}{5}\right)$

28. $\frac{3x}{8} \div \frac{1}{2}$

29. $21x \div 7$

30. $8x \div \left(-\frac{1}{4}\right)$

31. $-24x \div \left(-\frac{2}{3}\right)$

32. $\frac{18x - 9}{3}$

33. $\frac{22x + 10}{2}$

34. $\frac{-56 + x}{-8}$

35. $\frac{45 - 5x}{5}$

J. Solve each equation.

1. $2x = -10$ 2. $x - 4x = 12$ 3. $\frac{x}{3} = 2$ 4. $x - \frac{x}{2} = 5$
5. $\frac{x}{3} - \frac{x}{5} = 3$ 6. $-\frac{3}{8}y = -6$ 7. $\frac{9}{2}(x+3) = 27$ 8. $x - 3 = x + 1$
9. $9x - 5(3x - 12) = 30$ 10. $5m - (4m - 1) = -12$
11. $3(4 + 4x) = 12x + 12$

K. Solve each linear inequality and graph the solution on the number line.

1. $x + 2x > 9$ 2. $-2x < 10$ 3. $\frac{a}{3} \leq 12$ 4. $13 \leq -\frac{x}{3}$ 5. $-\frac{x}{2} \leq 0$
6. $-3.5x \geq 28$ 7. $-x + 6 > -(2x + 4)$ 8. $-2(x + 3) < 4x - 7$

L. Find the slope of the line passing through the given points. Use $m = \frac{y_2 - y_1}{x_2 - x_1}$

1. $(2, 5), (7, 10)$ 2. $(0, 5), (-4, 7)$ 3. $(2, -5), (-7, -10)$
4. $(0.5, -0.7), (1, 2.5)$ 5. $(-2, -4), (-3, -5)$

M. Write an equation in slope-intercept form ($y = mx + b$) of the line that passes through the points.

1. $(-2, -4), (4, 2)$ 2. $(-1, 0), (0, -3)$ 3. $(2, 0), (-2, 6)$ 4. $(1, 4), (5, -1)$

N. Graph the equation.

1. $y = 2x + 1$ 2. $y = -\frac{2}{3}x + 2$ 3. $y = 5$ 4. $x = 3$

O. Solve the linear system.

$$\begin{array}{lll} 1. y = x - 4 & 2. 2c - d = -2 & 3. x - 2y = -25 \\ 4x + y = 26 & 4c + d = 20 & 3x - y = 0 \end{array}$$

$$\begin{array}{lll} 4. -3x = 36 & 5. 7x + y = -2 & 6. 2x + y = 5 \\ -6x + y = 1 & x - 2y = 9 & x - y = 1 \end{array}$$

P. Simplify each expression. No negative exponents.

$$\begin{array}{llll} 1. 2^3 \cdot 2^4 & 2. (7)^2 (7)^3 & 3. (12x)^3 & 4. -(4x)^2 \cdot (5x)^3 \\ 5. (7x^3y) \cdot (2x^4) & 6. (4r^2s)^2 (-2s^2)^3 & 7. m^{-4} & 8. \frac{y}{x^{-2}} \end{array}$$

Q. Find the sum, difference or product. Simplify your answer.

$$\begin{array}{llll} 1. 7x^2 - 4 + x^2 + 5 & 2. (3x^2 - 2) - (2x - 6x^2) & 3. (8x^2 - 3x + 7) + (6x^2 - 4x + 1) \\ 4. (-z^2 + 3z) + (-z^2 - 4z - 6) & 5. (5x^2 - 7x - 4) - (4x^2 - 2x) & & \\ 6. (3a + 2a^4 - 5) - (a^3 + 2a^4 + 5a) & 7. x(4x^2 - 8x + 7) & 8. -3x(x^2 + 5x - 5) \\ 9. 5b^2(3b^3 - 2b^2 + 1) & 10. (t + 9)(2t + 1) & 11. (3z + 4)(5z - 8) \\ 12. (x + 3)(x^2 - 2x + 6) & 13. (3 + 2s - s^2)(s - 1) & 14. (x + 9)^2 \\ 15. (-c - d)^2 & 16. (a - 2)(a + 2) & 17. (-7 + m)(-7 - m) & 18. (x + 5)^2 \\ 19. (5p - 6q^2) & 20. (2a + 3b)(2a - 3b) & 21. (10x - 5y)(10x + 5y) \end{array}$$

R. Factor completely.

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|-----------------------|-----------------------|-----------------------|-----------------|
| 1. $y^2 + 3y - 4$ | 2. $n^2 + 16n - 57$ | 3. $x^2 + 17x + 66$ | |
| 4. $-45 + 14z - z^2$ | 5. $12b^2 - 17b - 99$ | 6. $2t^2 + 63t + 145$ | |
| 7. $18d^2 - 54d + 28$ | 8. $a^2 - b^2$ | 9. $4x^2 - 9$ | 10. $169 - x^2$ |

S. Solve the equation.

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|--------------------------|---------------------------|-------------------------|
| 1. $(2x - 3)(x + 7) = 0$ | 2. $5(x + 3)(2x - 5) = 0$ | 3. $x^2 - x - 2 = 0$ |
| 4. $x^2 + 7x + 10 = 0$ | 5. $x^2 - 9x = -14$ | 6. $2x^2 - 9x - 35 = 0$ |
| 7. $7x^2 - 10x + 3 = 0$ | | |

T. Write the given phrase or sentence as an algebraic expression.

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|--|----------------------------------|
| 1. 8 more than a number | 2. 3 times a number |
| 3. one sixth of a number | 4. 90% of a number |
| 5. 4 less than a number | 6. the cube of a number |
| 7. 3 more than a number, all divided by 2 | |
| 8. the sum of a number and 5 | 9. twice a number increased by 3 |
| 10. three times the difference of 20 and a number | |
| 11. The sum of x and 16 is less than 32. | |
| 12. The product of 15 and x is greater than 50. | |
| 13. The quotient of 30 and x is greater than or equal to 10. | |

U. Write **an expression** to answer the question.

1. A triangle has base b and height 5. What is its area?
2. Amy pays \$50 for a membership fee and \$25 per dress rental. How much does she spend altogether for x rentals?
3. Tom has \$65.25. He spends x dollars for a new book. How much does he have left?
4. How much is 6% sales tax on an item that costs x dollars?

V. Find the answer.

1. Tasha bought salads at \$2.75 each and cartons of milk at \$0.80 each. The total cost was \$16.15. How much of each did Tasha buy?
2. A rectangular garden is 45 feet long and has perimeter 150 feet. Rows of plants are planted 3 feet apart. Find the area of the garden?
3. If five turkey club sandwiches cost \$18.75, how much would seven sandwiches cost?

4. Mary wants to arrive at school no later than 7:25 A.M. for her first class. It takes her 25 minutes to shower and dress, 15 minutes to eat breakfast, and at least 20 minutes to get to school. What time should she plan to get out of bed?
5. There are 32 players in a single-elimination chess tournament. That is, a player who loses once is eliminated. Assuming that no ties are allowed, how many games must be played to determine a champion?
6. Carl has \$135 in the bank and plans to save \$5 per week. Jean has \$90 in the bank and plans to save \$10 per week. How many weeks will it be before Jean has at least as much in the bank as Carl?
7. The Lees are planning to use square tiles to tile a kitchen floor that is 18 feet long and 15 feet wide. Each tile covers one square foot. A carton of tiles cost \$18. How much will it cost to cover the entire kitchen floor?
8. A car travels 60 miles per hour for a distance 300 miles. How long did the trip take? Hint: $d=rt$
9. You pay \$105 for 8 tickets to attend a folk festival. Tickets for students cost \$10 each and tickets for adults cost \$15 each. How many of each type of ticket did you buy.
10. You spend \$13 to rent five movies for the weekend. Since new releases rent for \$3 and regular movies rent \$2, how many regular movies did you rent? How many new releases did you rent?