### ALGEBRA II SUMMER PACKET Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Review of Algebra 1 Skills**

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| **Evaluate each expression. . Leave ALL answers as fractions.** | |
| **1.** | **2.** |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Simplify each expression.** | |
| **3.** | **4.** |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Solve each equation. Leave ALL answers as fractions.** | |
| **5.** | **6.** |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **7.** | **8.** |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **9.** When solving a linear equation, your friend works through the problem correctly and her last step says -8 = -8. What should she write down as her “solution”? | |

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| **Solve each inequality. Leave ALL answers as fractions.** | | | | | |
| **10**.  3(2 − *m*) < 2(2 − *m*) − *m* | | **11.**  2(*x* + 4) ≥ − 2(8 − 2*x*) +10 | | **12.**  − 2 < 5(*x* +1) + 2 < 12 | |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| **Use the given information to answer the question.** | | | | | |
| **13. Amusement Park Trip** Your travel arrangements to an amusement park include a ground trip driving distance of 216 miles. The planned travel time is 4 hours. What must your average speed be to make the trip in the allotted time? | | | | | |
| **Speed = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | | |
| **14. Photography Studio** A photography studio advertises a session with a sitting fee of $8.95 per person. The standard package of pictures costs $29.25. Write an expression that gives the total cost of a session with the purchase of one standard package. Evaluate the expression if a family of four purchases this package. | | | | | |
| **Expression for Total Cost = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Family of Four Cost = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | | |
| **15. Lighting Configuration** You want to install 3 ceiling lights in a row to improve the visibility in your garage. Each light is 3 feet long and your garage is 27 feet long. The distance between each light, and between the lights and the walls, should the same. Draw a diagram to help solve this problem. What is the distance between successive lights? | | | | | |
| **Distance = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | | |
| **Identify the domain and range of the relation. Then, determine whether the relation is a function by answering Yes or No.** | | | | | |
| **16.** | | | **17.** | | |
| **Domain = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Range = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | **Domain = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | **Range = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Function? YES NO** |  | | **Function? YES NO** | |  |

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| **Use the vertical line test to determine whether the relation is a function. Answer Yes or No.** | |
| **18.**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **19.**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Evaluate the function for the given value of *x*. Leave ALL answers as fractions.** | |
| **20.** | **21.** |
| = \_\_\_\_\_\_\_\_\_\_\_\_\_ | = \_\_\_\_\_\_\_\_\_\_\_\_\_ |
| **Find the slope of the line passing through the given points. Then tell whether the line *rises, falls, is horizontal*, or *is vertical***. | |
| **22.** (8, 7), (8, -3) | **23.** |
| *m* **= \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | *m* **= \_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |
| **Determine whether the lines are *parallel, perpendicular,* or *neither.*** | |
| **24.**  Line 1: through (7, 3), (8, 7)  Line 2: through (−5, −4), (−1, −5) | **25.**  Line 1: through (5, 2), (1, −7)  Line 2: through (−1, 3), (9, −1) |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** |

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| **Use the information to write an equation of the line in slope-intercept form.**  **Slope-Intercept Form Point-Slope Form  Standard Form** Ax + By = C | | | | | | | |
| **26.** | | | | **27.**  through the point | | | |
| EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **28.**  through the point | | | | **29.**  through the point | | | |
| EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **30.**  through the points | | | | **31.**  through the points | | | |
| EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **32.**  Parallel to , passes through | | | | **33.**  Perpendicular to , passes through | | | |
| EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **Use the graph to write an equation of the line.** | | | | | | | |
| **34.**    EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | | **35.**    EQ: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |
| **Use the information to graph the equation.** | | | | | | | |
| **36. Graph using the slope and y-intercept**    **m = ­­­­­­\_\_\_\_\_\_\_\_ b = \_\_\_\_\_\_\_** | | | | **37. Graph using the slope and y-intercept**      **m = ­­­­­­\_\_\_\_\_\_\_\_ b = \_\_\_\_\_\_\_** | | | |
| **38. Graph a line using the x- and y-intercept**    x-intercept: –3  y-intercept: 4 | | | **39.** Write the equation that is the translation of  right 3 units and up 4 units.      **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | **40.** An absolute value equation \_\_\_\_\_\_\_\_ has an extraneous solution.   1. **always** 2. **sometimes** 3. **never** |
| **Solve the equation. Check for extraneous solutions. Leave ALL answers as fractions.** | | | | | | | |
| **41.** | | **42.** | | | **43**. | | |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | |
| **Solve the inequality. Graph the solution. Show the interval notation.** | | | | | | | |
| **44.** | | | | **45.** | | | |
| **Graph the Absolute Value equation. Be sure to include ALL of the following for each graph.**  **A. Find the Vertex**  **B. Graph the Function**  **C. Find the Axis of Symmetry**  **D. Does it stretch, if so by how much?**  **E. State the domain and range.**  **F. Describe end behavior.** | | | | | | | |
| **46.**   |  |  | | --- | --- | | **A** |  | | **B** | *See graph above* | | **C** |  | | **D** |  | | **E** | Domain:  Range: | | **F** |  | | | | | **47.**   |  |  | | --- | --- | | **A** |  | | **B** | *See graph above* | | **C** |  | | **D** |  | | **E** | Domain:  Range: | | **F** |  | | | | |
| **Solve the System of Equations using any method.** | | | | | | | |
| **48.** | | **49.** | | | **50.** | | |
| **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | |
| **51. 51.** A rental car agency charges a flat fee of $24.00 plus $2.00 per day to rent a certain car.  Another agency charges a fee of $18.75 plus $3.75 per day to rent the same car.   |  |  | | --- | --- | |  | Write a system of equations to represent the cost *c* for renting a car at each agency for *d* days.  Using a graphing calculator, find the number of days for which the costs are the same. Round your answer to the nearest whole day. |   **Answer: \_\_\_\_\_\_\_\_\_\_\_ Days \_\_\_\_\_\_\_\_\_\_\_ Cost** | | | | | | | |
| **52.** A group of 75 people attended a ball game. There were four times as many children as adults in the group. Set up a system of equations that represents the numbers of adults and children who attended the game and solve the system to find the number of children who were in the group.  **Answer: \_\_\_\_\_\_\_\_\_\_\_ # of Adults \_\_\_\_\_\_\_\_\_\_\_ Cost** | | | | | | | |
| **Solve the system of inequalities by graphing.** | | | | | | | |
| **53.** | | | | **54.** | | | |
| **Identify the vertex, axis of symmetry, domain, and range of each parabola. Use Interval Notation.** | | | | | | | |
| **55.** | **Vertex:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Axis of Symmetry:\_\_\_\_\_\_\_\_**  **Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Range:\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | **56.**  *TT_PH_EN_MA_A2_2004_05B/MTH_A204_05_99_294_2.gif* | | **Vertex:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Axis of Symmetry:\_\_\_\_\_\_\_\_**  **Domain:\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Range:\_\_\_\_\_\_\_\_\_\_\_\_\_** | |
| **Rewrite each function in standard form. Determine whether the function is linear or quadratic.** | | | | | | | |
| **57.**  **Y = 2x(x+1)–4+x** | **58.**  **Y = 4x2 + 12x + 9 – 4x2 + 3** | | | **59.**  **Y = (2x+3)(x-4)** | | **60.**  **Y = 3(x2 – 2x) – 3( x2 – 2)** | |
| **Standard Form:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Circle: Linear or Quadratic** | **Standard Form:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Circle: Linear or Quadratic** | | | **Standard Form:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Circle: Circle: Linear or Quadratic** | | **Standard Form:**  **\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**  **Circle: Circle: Linear or Quadratic** | |
| **Factor the Following Polynomials.** | | | | | | | |
| **61.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | **62.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | |
| **63.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | **64.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | |
| **65.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | **66.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | |
| **67.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | **68.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | |
| **Graph the Quadratic equation. Be sure to include ALL of the following for each graph.**  **A. Find the Vertex**  **B. Graph the Function**  **C. Find the Axis of Symmetry**  **D. Does it stretch, if so by how much?**  **E. State the domain and range.**  **F. Describe end behavior.** | | | | | | | |
| **69. y = 2(x + 1)2 - 4**   |  |  | | --- | --- | | **A** |  | | **B** | *See graph above* | | **C** |  | | **D** |  | | **E** | Domain:  Range: | | **F** |  | | | | | **70. y = -(x - 2)2 +1**   |  |  | | --- | --- | | **A** |  | | **B** | *See graph above* | | **C** |  | | **D** |  | | **E** | Domain:  Range: | | **F** |  | | | | |
| **71. y = -x2+5x-3**   |  |  | | --- | --- | | **A** |  | | **B** | *See graph above* | | **C** |  | | **D** |  | | **E** | Domain:  Range: | | **F** |  | | | | | **72. y = 2x2+8x-3**   |  |  | | --- | --- | | **A** |  | | **B** | *See graph above* | | **C** |  | | **D** |  | | **E** | Domain:  Range: | | **F** |  | | | | |
| **Solve the story problem.** | | | | | | | |
| **73. The function models the heights *y* in feet of a stone *x* seconds after it is dropped from the edge of a vertical cliff. How long will it take the stone to hit the ground? Round to the nearest hundredth.**  **Answer: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_** | | | | | | | |