Algebra 1 Final Review Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Solve $x^{2}-3x-10=0$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

2. Solve $(2x-3)(x+4)=0$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

3. Find the vertex of $x^{2}+2x-8$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

4. Find the axis of symmetry of $x^{2}+6x+5$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

5. If $f\left(x\right)=3x-7$, find $f(-2)$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

6. If $f\left(x\right)=3x-7$, find *x* when $f\left(x\right)=17$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

7. Given a = 4, b = -2, c = 5, evaluate: $a^{2}-c+2b$ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

8. What is the slope of (5, 4) and (-2, 6)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

9. If $f\left(x\right)=2^{x}$, what is $f(4)$? \_\_\_\_\_\_\_\_\_\_\_\_\_

10. Stacy has $500 in her bank account. She wants to save money for a car and plans on depositing $60 each week, $x$. Write a function/expression that represents this situation. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

11. How many weeks will Stacy have to save in **Problem 10**, if the car she wants is $4,500? \_\_\_\_\_\_\_\_\_\_\_\_\_\_

12. Kristin spent $131 on shirts. Name brand shirts, $x$, cost $28 and regular shirts, $y,$ cost $15. She bought a total of 7

Shirts. Write a system of equations to represent this situation. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

13. How many of each type of shirt did Kristen buy in **Problem 12? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

14. Given: $g\left(x\right)=49+6x$, what is the slope? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

15. Given the following, write a linear equation to represent the pattern. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| x | 0 | 1 | 2 | 3 |
| y | 5 | 15 | 25 | 35 |

16. Given $f\left(x\right)= x^{2}+4 and g\left(x\right)=3^{x}$, fill in the blank with the appropriate symbol (<, ≤, =, >, ≥).

$$f\left(5\right) \\_\\_\\_\\_ g\left(5\right)$$

17. Given the pattern 10,000 , 5,000 , 2,500 , 1,2500 , 625,…what is the next term? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

18. Given the pattern 3, 12, 48, 192, 768, 3072,… what is the FIRST term? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

19. What is $f(1)$? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 

20. What is the equation of the line in #19? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

21. Given the set of numbers: **4, 6, 6, 8, 8, 10, 10, 11, 12, 20.** Find themedian and the Interquartile range.

Median = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

IQR = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Twenty of Mr. Smith’s algebra students recently took a quiz. The results of the quiz are shown on the box-and-whiskers plot below.

22. What score was greater than or equal to *75%* of all other scores on the quiz?

23. Mr. Smith regularly sets the passing score on his quizzes to be the score of the *lower quartile*. What is the passing grade on the quiz?

Use the following to answer questions 24 and 25.

The average NBA athlete’s salary is given below in the table.

|  |  |
| --- | --- |
| Years since 1980 | Annual Salary(thousands of dollars) |
| 0 | 135 |
| 5 | 320 |
| 10 | 805 |
| 15 | 2000 |
| 16 | 2405 |
| 17 | 2890 |
| 18 | 3460 |

24. When graphed, the data set above is an example of a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ scatterplot.

25. Using technology, calculate the regression in the form that is suitable for the scatterplot. What is the equation of the regression in the correct form?