Final Exam Review: Study Guide Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

AFM

1. For the following arithmetic sequence, find the 18th term of 1.4, 1.9, 2.4
2. Find the three arithmetic means between 2 and 5.
3. Find the sum of the first 35 terms of the arithmetic sequence when
4. Find the sum of the arithmetic series in which
5. Evaluate:
6. Find the sixth term of the geometric sequence:
7. Find the sixth term of the geometric sequence if
8. Find the 8th term of the geometric sequence when
9. Find the four geometric means between 128 and 4.
10. Find the sum of the first five terms of the geometric series:
11. Find the sum of the infinite geometric series, if it exists.
12. Find the sum of the infinite geometric series, if it exists:
13. Find the six trigonometric functions for the given triangle:

**14**

**16**

**21**

1. Find all the missing angle and side measures for the right triangle:

**B**

**40**

**16**

**C**

**A**

1. A ramp in a park is 48 feet long and rises 6 feet. Estimate the angle to the nearest tenth that the ramp makes with the ground.
2. Given triangle ABC with a = 14, A = 40, and B = 28, what is the measure of c?



1. Graph
2. State the amplitude, period, vertical shift, and horizontal shift for:

**For questions 19 – 21, use the following information: On a normal curve, the mean on the Algebra II Final is 54, with a standard deviation of 11.8**

1. What percent of students are within 2 standard deviations of the mean?
2. If 120 students took the test, how many scored higher than 65.8?
3. What percent scored lower than 54?
4. Graph the piecewise function:
5. A 9-member committee is selecting a president, vice-president, secretary, and treasurer from the committee. No person can serve in two positions. In how many ways can the four positions be filled?
6. Teddy is buying a sports car. He can buy red or black, convertible or hard-top, straight drive or automatic. How many possible models does he have to choose from?
7. How many possible ways can you choose 3 library books to check out from 8?
8. How many ways can you arrange 8 candles on the top of a birthday cake?
9. How many ways are there to arrange the letters in “Trigonometry”?
10. How many ways can Mrs. Smith’s preschool class of 12 students line-up to go outside and play?
11. How many groups of 5 students can be chosen from 25?
12. How many ways can you choose a group of 5 men and 7 women from 12 men and 13 women?
13. Suppose you select 3 letters from the word CLEMSON. What is the probability of selecting 2 vowels at the same time?
14. A bag contains 8 orange marbles and 5 purple marbles. If a marble is chosen at a random, what is the probability that it is not purple?
15. Billy breaks his piggy bank and finds 5 pennies, 8 nickels, and 9 dimes. What is the probability that he will selection 1 dime and 1 nickel at the same time?
16. What is the probability he will select 2 pennies at the same time?
17. A die is thrown twice. What is the probability that a 4 is thrown followed by a 6?

For questions 36 – 38, 12 playing cards (3 Aces, 4 Kings, 2 Queens, and 3 Jacks) are placed on the table face down. If four cards are selected at random, find the probability that:

1. You select Ace, Jack, King, King, without replacement.
2. You select a Queen, King, Jack, Ace, with replacement.
3. You select Queen, Queen, Ace, any card other than Ace, without replacement.
4. Find the value of .

a) 15 b) 2 c) 24 d) 360

1. Find the standard deviation for the given data:

 a) 3.28 b) 1. 28 c) 2.28 d) 4. 28

1. Solve:

a) x = -1 b) x = 0 c) x = 2 d) x = -3

1. Evaluate:

 a) 3 b) 5 c) 4 d) 2

1. Evaluate:

 a) 9.4 b) 1.97 c) .51 d) 3.95

1. Solve for x to four decimal places.

 a) -0.4030 b) 0.4351 c) 0.7559 d) -0.7559

 a) b) c) d)

 a) (-3.68, - .32) b) infinite solutions c) (3.68, .32) d) no solution

1. Radioactive Iodine-129 decays over time into stable Xenon-129. The percent of I-129 remaining in several mineral samples can be used to calculate the radioactive half-life of I-129, based on the ages of the mineral samples determined by other “dating” techniques. The following table shows data on the percent of I-129 remaining in minerals of different ages.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Age (billions of years)** | 2.0 | 3.5 | 4.2 | 4.3 |
| **Percent of original I-129** | 74 | 59 | 53 | 52 |

1. Find the regression equation for the percent of I-129 remaining as a function of time *x.*
2. Write the regression equation in terms of base *e*.

c. Use the equation from part b to estimate the half-life of Iodine-129.



1. Find an exponential function to model the data.
2. Find the best fit regression model for the data according to the given model.

|  |  |
| --- | --- |
| ***x*** | ***y*** |
| 1 | 50 |
| 2 | 140 |
|  3 | 260 |
| 4 | 400 |
| 5 | 560 |
| 6 | 750 |
| 7 | 925 |
| 8 | 1130 |

1.
2. As automobiles age, the average miles traveled per gallon decreases. Determine the regression equation that best models the data.
3. Power
4. Logarithmic
5. Quadratic
6. Exponential

|  |  |
| --- | --- |
| **Age (years)** | **MPG** |
| 1 | 35 |
| 3 | 34 |
| 5 | 33 |
| 7 | 31 |
| 9 | 28 |
| 11 | 26 |
| 13 | 23 |
| 15 | 18 |

1. What is the explicit form of the equation:



1. Which function has an amplitude that is twice the size and a period that is three times the size of the function

