**AFM FINAL EXAM REVIEW**

SHOW ALL WORK on separate paper. **Circle your answers.**

1.Express  in logarithmic form.

2. Express in exponential form: 

3. Evaluate: log4 64

4. Solve: 

5. Solve: 

6. Find the 25th term of the arithmetic sequence: **8, 11, 14, 17, …**

7. Give the first four terms of the arithmetic sequence defined by  and .

8. Find ***n*** given the arithmetic sequence 19, 14, 9, …. and An = -41

9. For the following arithmetic sequence, find the 18th term of 1.4, 1.9, 2.4, ….

10. Find the sum of the first 35 terms of the arithmetic sequence when A1 = 5 and d = 4

11. Find the sum of the arithmetic series in which  and A34 = 71.

12. Evaluate: 

13. Find the sixth term of the geometric sequence: 

14. Find the sixth term of the geometric sequence if A1 = 48 and r = -2.

15. Find the 8th term of the geometric sequence when A1 = 9 and r = 1/3.

16. Find the sum of the first 5 terms of the geometric series: 1/3 + 2 + 12 + …

17. Find  in a geometric series for which  and r = -3.

18. Find the sum of the infinite geometric series, if it exists. 

19. Find the sum of the infinite geometric series, if it exists. 20 – 2 + 1/5 - …..

20. Find the six trigonometric functions for the given triangle.

21. Find all the missing parts of the right triangle *ABC*.

 Round to the nearest hundredth.

22. A ramp in a multistory car park is 48 feet long and rises 6 feet. Estimate the angle to the nearest tenth that the ramp makes with the horizontal.

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23. A person on an escalator travels 170 feet and rises 85 feet. What is the angle to the nearest tenth that the escalator makes with the ground?

24. Express  in degrees.

25. Express 44° in radians.

26. Find the exact value for 

27. Given triangle **ABC** with a = 14, A = 40°, B = 28° what is the measure of ***c***?

28. A Ferris wheel has diameter of 60 feet. Riders enter the Ferris wheel at its lowest point, 5 feet about the ground at time t = 0 seconds. One complete revolution takes 70 seconds. Write a cosine equation to model the rider’s vertical height, h(t), at t seconds.

29. State the amplitude, period, vertical and horizontal shift for: 

30. Using the given data, find the mean, standard deviation, median, 5 number summary, range, IQR and any outliers.

**47, 53, 57, 61, 65, 66, 71, 75, 76, 77, 78, 87, 88, 90**

31. A basketball team scored the following points in games so far this season: 52, 65, 40, 60, 45, 61, and 48. If they need an average of 55 points per game to make it to a tournament, how many points do they need to score in the next game?

**For questions 32-34, use the following information**. On a normal curve, the mean on the Algebra 2 EOC is 54, with a standard deviation of 11.8.

32. What percent of the students are within 2 standard deviations of the mean?

33. If 120 students took the test, how many scored higher than 65.8?

34. What percent scored lower than 54?

35. 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?

36. John 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?

37. How many possible ways can you choose 3 library books to check out from 8?

38. How many ways can you arrange the letters of “Trigonometry”?

39. How many ways can Mrs. Smith’s preschool class of 12 students line-up to go outside and play?

40. How many groups of 5 students can be chosen from 25?

41. How many ways can you choose a group of 5 men and 7 women from 12 men and 13 women?

42. Suppose you select 3 letters from the word CLEMSON. What is the probability of selecting 2 vowels at the same time?

43. A bag contains 8 orange and 5 purple marbles. If a marble is chosen at random, what is the probability that it is NOT purple?

44. 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?

45. What is the probability that he will selection 2 pennies at the same time?

46. A die is thrown twice. What is the probability that a 4 is thrown, followed by a 6?

For questions 47-49, 12 playing cards (3 Aces, 4 Kings, 2 Queens, and 3 Jacks) and placed on the table, face down. If four cards are selected at random, find the probability of selecting the cards in order (one at a time).

47. P(Ace, Jack, King, King) no replacement.

48. P(Queen, King, Jack, Ace) with replacement.

49. P(Queen, Queen, Ace, any card other than Ace) no replacement.

50. If the principle of a loan is $4500 and the interest rate is 6.4% for a 4 year investment, how much interest is earned?

51. How much will you have if you invest $4000 at 6% for 20 years and it is compounded quarterly?

52. How much would you have if you invested the $4000 at 6% for 20 years if it is compounded continuously?

53. John invests $2000 in an account at a rate of 5% compounded continuously for 3 years and Jack invests the same amount in an account paying 7.2% compounded continuously. At the end of the 3 years, how much more money will Jack have than John?

54. The graph of y = ln (x + 4) – 8 is translated 6 units to the right and 4 units up. What is the equation of the new function?

55. Write the equation of a power function in y = axb form, that passes through the points (2, 1) and (5, 6).

 b) Use your power function to predict the value of y when x = 9.

56. Sally took a 10 question multiple-choice test. Suppose that her probability of correctly answering any question is 0.62. What is Sally’s probability of incorrectly answering exactly 3 questions on the quiz?

57. The number of wolves, w, in areas of the forest has the following probability distribution:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| w | 6 | 8 | 10 | 12 | 14 | 16 | 18 |
| P(w) | 0.3 | 0.26 | 0.16 | 0.11 | 0.08 | 0.04 | 0.03 |

What is the EXPECTED number of wolves in an area of the forest?

58. A piece-wise function, f(x), is shown below

 

Graph f(x). What is the range of f(x)?