1. Evaluate 10!; in other words, "10 factorial."
2. What is the probability of rolling a sum of three or six when rolling two fair six-sided die? Express answer as a common fraction.
3. Evaluate: 125^2 - 55^2
4. What is the sum of the first three smallest positive perfect numbers?
5. What does tan(x) equal if x = 0?
6. Evaluate: $(3\sqrt{4} - 4)(3\sqrt{4} + 4)$
7. If an iPhone has a four-digit passcode, how many different possible iPhone passcodes are there using the integers from 0 to 9, inclusive?
8. Evaluate: 45^2 - 65^2
9. Express in simplest radical form: $\sqrt{8788}$
10. Find the determinant of the following matrix: $\begin{bmatrix} 11 & 13 & 17 \\ 4 & 13 & 11 \\ 0 & 16 & 15 \end{bmatrix}$
11. Evaluate: 495 – 594
12. How many seconds are there in 1 day?
13. A stack of 79 \$5 and \$10 bills has a total value of \$470. How many \$5 bills are there in the stack?
14. If Jordan spends 35% of his 24-hour day on facebook, how many seconds during the day is he on facebook?
15. Express in simplest radical form: $\sqrt{338}$ - $\sqrt{648}$
16. Evaluate: $1024^{-2/5}$. Express your answer as a common fraction.
17. Evaluate the following product, and express your answer as a decimal: (0.73)(0.07)
18. What is the area of a circle with diameter 14?
19. If Shane has a YouTube account and he gets ten cents for every view he gets on each video, how much money will he make if he has three videos that each have 1 million views, 4 hundred thousand views and 2.3 million views, respectively? Express your answer in dollars.
20. Find the units digit of the following number: $13^{75} + 16^{75}$
21. What is the area of a trapezoid with base legs of length 6 units and 15 units with a height of 4 units.
22. How many ways can a group of four students be chosen out of 24 students in a classroom?
23. Jordan has two younger brothers. The sum of all three of their ages is 52 years, and the product of their ages in years is, ignoring units, equal to 5120. What is the sum of the younger brothers' ages if his younger brothers are the same age? Express your answer in years.

24. Andrew and Justin are both mowing lawns for the summer. If Justin can mow a lawn in five hours and Andrew can mow a lawn in six hours how many hours would it take both of them working together to mow three lawns? Express your answer as a common fraction.

25. Which of the following fractions is the smallest? $\frac{7}{16}$ $\frac{4}{7}$ $\frac{8}{15}$

26. Find the nonnegative integer less than 4 that is congruent to 4661 (mod 4).

27. Convert the decimal $0.00\overline{693}$ to a fraction in lowest terms.

28. Evaluate: $5^7 + 5^7 + 5^7 + 5^7 + 5^7$

29. If $\log_{1024}(2)$ equals 0.10, what does $\log_8(4096)$ equal?

30. Evaluate: sec π

31. Tom has a large quantity of 3-cent and 5-cent stamps. What is the largest amount that Tom cannot make with a combination of these stamps? Express your answer in cents.

32. How many dollars is the interest on a loan of $52,000 for 4 years at 5% simple interest?

33. Find the missing digit that makes the following equation true: 8! + 9! = 403?00

34. What is the 20th smallest positive prime number?

35. How many positive two-digit integers exist that are not multiples of 3?

36. What is the fourth smallest positive perfect number?

37. What is the prime factorization of 64800?

38. Find the determinant of $\begin{bmatrix} 1 & 4 & 2 & 2 \\ 3 & 12 & 6 & 4 \\ 1 & 6 & 3 & 4 \\ 3 & 12 & 6 & 2 \end{bmatrix}$.

39. Find the base 10 equivalent of the base 7 number 1335_7.

40. How many milliliters of distilled water should be mixed with 20 milliliters of 60% acid to obtain a mixture that is 30% acid?

41. Solve for x: $10^x = 0.00001^2$

42. There are twenty different pairs of socks in a drawer. If I am randomly grabbing socks without looking, how many socks do I need to grab to make sure that I have at least one matching pair?

43. Find the number of zeroes at the end of 210!, when expressed in base 10.

44. Find the number of asymptotes in the graph of the following equation: $y = \frac{x^2 + x + 1}{x}$

45. Express the number $\frac{3}{2-\sqrt{14}}$ as a simplified fraction with an integer denominator.

46. The probability of rain on a particular day is $\frac{1}{3}$, independent of the other days. What is the probability that it rains exactly once in the next two days? Express your answer as a common fraction.

47. Norris makes a number of free throws during basketball practice. If his free throw percentage was 60%, how many free throws did he make out of 75 free throw attempts?

48. What are all the potential rational roots of the following equation: $-2x^2 + 15x + 17 = 0$ according to the Rational Root Theorem?

49. A television costs $789 on Black Friday before tax. If the normal price of the television is $1099 before tax, how much more tax is there on the normal price than on the black Friday price? Assume a tax rate of 8%. Express your answer in dollars.

50. Express the difference as a base 7 number: $562_7 - 426_7$

51. The probability that Andrew gets a girlfriend is 0.80 and the probability that Justin gets a girlfriend is 0.30. If these events are independent, what is the probability that at least one of them gets a girlfriend? Express your answer as a decimal.

52. A square with side length 14 is inscribed in a circle. What is area of the circle?

53. What is the surface area of a sphere with diameter 12?

54. Evaluate $i^{2007} + 3i^{2005} + 5i^{2003}$, where $i = \sqrt{-1}$.

55. How many distinct linear permutations are there of the letters in the word SANFRANCISCO?

56. Convert the following polar coordinates into rectangular coordinates: $(4, 24\pi)$

57. Find the length of the curve given by the vector-valued function $\mathbf{r}(t) = \langle 6t, t^2, \frac{1}{9}t^3 \rangle$, for $0 \leq t \leq 1$. Express your answer as a common fraction.

58. Let the points A = (-4, 0, -1), B = (3, 1, -8), and C = (2, 4, 7). Which of the following points: Point A, Point B, or Point C is the closest to the yz-plane?

59. Find the area of a triangle with side lengths 10, 24 and 26.

60. What is the sum of the positive *proper* integral factors of 64?

61. Find the dot product of the following two vectors: $\mathbf{a} = -2\mathbf{i} + \frac{1}{4}\mathbf{j}$ and $\mathbf{b} = -2\mathbf{i} + 12\mathbf{j}$.

62. Find the shortest distance from (4, -7, 7) to the xy–plane.

63. Two fair, six-sided dice are rolled. Find the probability that their sum is a prime number. Express your answer as a common fraction.

64. Evaluate: 17^3

65. If 2x – 5 = 9, then what is the value of x^2 +4?

66. How many cubic centimeters are in 1 cubic meter?

67. How many two-digit positive integers are multiples of both three and seven?

68. How many odd integers between 3000 and 5000 have four distinct digits?

69. Evaluate: $\log_5 \sqrt{625^5}$

70. How many asymptote(s) are there in the graph of $y = \frac{3x^2 + 5x - 6}{x - 2}$?

71. How many positive prime numbers are less than 100?

72. What is the sum of the coefficients of the expansion of $(2x - 2y + 5z)^3$ when expanded and like terms combined?

73. Tom is running a 22-mile marathon. It takes him 15 minutes to jog a mile and only 9.5 minutes when he sprints a mile. If he jogs three miles and then sprints a mile, how many seconds does it take for him to complete the marathon if he continues this pattern without fail?

74. If it takes James twenty five seconds to complete a math problem, at this rate, how many seconds would it take him to finish an 80-problem math test?

75. Jack always leaves a 10% tip every time he eats at a restaurant. How much tip, in dollars, did Jack leave if the total cost of his meal, including tip, was a total of $18.70? Assume no taxes.

76. How many minutes are there in a regular year (that is a non-leap year)?

77. Find the derivative of $y = e^{2x}$ with respect to x.

78. Find the product of $(\log_a b)(\log_b a)$if a and b are both positive numbers greater than 2013.

79. How many diagonals are there in a regular dodecagon?

80. Find the radius of the following circle: $4(x - 4)^2 + 4(y + 5)^2 = 256$