

89991 1.  $(9999)(9) = ?$

7285 2.  $8642 - 1357 = ?$

-42 3. What is the fifth term of an arithmetic sequence with first term 2 and common difference -11?

3/2 or 1.5 4. What is the larger solution of  $2x^2 - 5x + 3 = 0$ ?

635 5.  $5^4 + 3^2 + 1^0 = ?$

$-\frac{11}{7}$  6. If  $2x - 9 = 9x + 2$ , then  $x = ?$

132 7.  $11^4 + 11^3 = 121x$ ;  $x = ?$

154 8. What is the third-largest positive integral factor of 462?

1/3 9.  $\log_{216}(\log_2 64) = ?$

8 10. What is the remainder when 2010 is divided by 13?

3999900 11.  $(2010)(1990) = ?$

5 12. How many primes are less than 90 but greater than 70?

8 13. If  $3x + y = 10$  and  $x - y = -2$ , then  $xy = ?$

59/24 14. Simplify  $\frac{3}{4} + \frac{5}{6} + \frac{7}{8}$  as an improper fraction.

27 15.  $123_4 = ?_{10}$

-3 16.  $4^x = 8^{x+1}$ ;  $x = ?$

1050 17. What is the length of the hypotenuse of a right triangle with legs measuring 630 and 840?

200 18. If  $(x, y)$  is the hole in the graph of  $y = \frac{x^2 - 100}{x - 10}$ , then  $xy = ?$

898 19.  $(42)\left(21\frac{8}{21}\right) =$

2 20. What is the units digit of  $4^6 + 6^4$ ?

364 21. How many days are in 52 weeks?

84 22. If  $\sqrt{12} + \sqrt{75} = a\sqrt{3}$ , then  $12a = ?$

89 23. What is the smallest Fibonacci number greater than 75?

7 24.  $.0\overline{83} + .\overline{1} = \frac{x}{36}$ ;  $x = ?$

11 25. What is the product of the solutions of  $4(x - 6)^2 = 100$ ?

15432 26.  $123456 \div 8 = ?$

-38 27.  $(5 + 3\sqrt{7})(5 - 3\sqrt{7}) = ?$

$18\pi$  28. A square has side length 6. What is the area of a circle circumscribed about this square?

501 29. How many zeros are at the end of the decimal number representation of 2010!?

77 30. What is the sum of all prime factors of 2010?

97.5 31. What obtuse angle measure do the hands of a clock make at 6:15? (in degrees)

1 32. How many 3-digit perfect cubes end in the digit 5?

1860 33.  $98^2 - 88^2 = ?$

16/3 34.  $8 - 4 + 2 - 1 + \dots = ?$

10 35. A polygon with 35 diagonals has how many sides?

72 36. If  $a \otimes b = \frac{ab}{3}$ , find  $(6 \otimes 9) \otimes 12$ .

5/24 37. If  $A = \begin{bmatrix} 2 & 5 \\ 6 & 3 \end{bmatrix}$  and  $A^{-1} = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$ , then  $b = ?$

18 38.  $\frac{5! + 4!}{3! + 2!} = ?$

6.8 or 34/5 39. If X is 40% of 85, then what is 20% of X?

-6 40. If  $\lfloor x \rfloor$  denotes the greatest integer value of  $x$ , then what is the value of  $\lfloor \pi \rfloor + \lfloor e \rfloor - \lfloor \log_{10} 10^{11.12} \rfloor$ ?