

### Magic Math Contest

1. 6      3 friends want to stand in a line to take a picture. In how many ways can they arrange themselves.
  
2. 2      
$$\frac{1 - \frac{1}{3}}{1 - \frac{2}{3}} =$$
  
3. 130      On a map, 13 cm represents 700m. How many centimeters does 7km represent?
  
4. 1      If Bobby bikes at 15 miles per hour, how many miles will he bike in 4 minutes?
  
5. 136      The combined weight of 3 potatoes is 600 grams. When I add another potato to the group, the average weight of the 4 potatoes is 184 grams. What is the weight of the new potato I added to the group?
  
6. 100      How many numbers between 200 and 900 are multiples of 7?
  
7. 6      The symbol  $\oplus$  is defined by operation  $(a \oplus b) = \frac{a}{b} \times (a + b)$ . What is the value of  $(3 \oplus 4) \times (1 \oplus 7)$
  
8. 96      The length of a rectangle is increased by 20% percent and the width is decreased by 20% percent. What percent of the old area is the new area?
  
9. 400      I have a floor that is 10 meters  $\times$  10 meters. How many 50 cm  $\times$  50 cm tiles do I need to use to cover the entire floor?
  
10. 2      What is the reciprocal of  $\frac{3}{12} + \frac{27}{108}$ ?
  
11. 1      
$$100 \times \left(1 - \frac{1}{2}\right) \left(1 - \frac{1}{3}\right) \left(1 - \frac{1}{4}\right) \cdots \left(1 - \frac{1}{100}\right) =$$
  
12. 29      I have a number N that is less than 50. When I divide N by 2, it leaves a remainder of 1. When I divide N by 3, it leaves a remainder of 2. When I divide N by 5, it leaves a remainder of 4. What is N?
  
13. 3      What is the sum of two integers that  $\frac{\sqrt{10}}{2}$  lies between?

14. 11 How many times do the hour and minute hands of the clock intersect in a 12 hour time period starting at 11:01 a.m.?
15. 400 Find the sum of the first 20 positive odd numbers.
16. 8 Two sides of a triangle have lengths 3 and 10. What is the smallest possible integer length of the third side so that the triangle has positive area?
17. 19 The sum of 40 consecutive integers is -20. What is the largest of the 40 numbers?
18. 84 How many 3-digit numbers have all digits in increasing order? (example: 123 is increasing order)
19. 252 How many 3 digit numbers contain at least one 7?
20. 4 What is the x-coordinate of the intersection of lines  $y = 2x - 5$  and  $y = -\frac{1}{2}x + 5$ ?

Answer Key  
Not valid test