



Star College



horizon Mathematics Competition

HMC 2006 FIRST ROUND

INSTRUCTIONS

- This exam paper consists of 20 questions of mathematics, logical deduction and analytical reasoning
- The exam duration is 60 minutes and no extra time will be given.
- The final answer must be entered in to correct place on the answer sheet which is supplied separately.
- There is no penalty for incorrect answer.
- Calculators or any other computing device are NOT allowed
- Name, address and tel number sections on the answer sheet must be filled otherwise your exam will not be evaluated.

1. 25% of 200 equals
 a) 25 b) 50 c) 100 d) 250 e) 15

2. $98,76 - 9,876$ equals
 a) 88,884 b) 0 c) 8, 8884 d) 888, 84 e) 1

3. $\frac{1 \times 2 \times 3 \times 4 \times 5}{1 + 2 + 3 + 4 + 5} = ?$
 a) 0 b) 8 c) 15 d) 12 e) 16

4. if $n=6$ then the value of $(n-3)(2n+1)(\frac{2n}{3}-1)$ is
 a) 17 b) 117 c) 107 d) 79 e) 27

5. Which of the followings is between $\frac{3}{5}$ and $\frac{3}{4}$
 A) $\frac{9}{10}$ b) $\frac{4}{5}$ c) $\frac{16}{20}$ d) $\frac{15}{20}$ e) $\frac{2}{3}$

6. The price of an article is decreased by 20%. After that the new price is increased by 30%. What percentage is the final price more than the original price?
 a)10% b)20% c)30% d)40% e)4%

7. $8 - 2 \times 3 + 12 \div 4 = ?$
 a)7,5 b)12,5 c)5 d)10 e)15

8. How many rectangles are there in this figure?
 a)7 b)10 c)11 d)18 e)16



9. The sum of 4 even consecutive integers is 2004. What is the biggest number?
 a) 496 b) 498 c) 500 d) 502 e) 504

10. If m is an integer which of the following is always an even number ?
 a) $2m+1$ b) $m+2$ c) $3m+4$ d) $2m+4$ e) $\frac{2m+4}{2}$

11. If the pattern continued which of these numbers will appear?
 1; 3 ; 7 ; 15 ; 31 ; ?
 a) 33 b) 43 c) 53 d) 63 e) 73

12. If the 15th March 2006 is Wednesday, Which day was it 15th March 2000?
 a) Monday b) Tuesday c) Wednesday d) Friday e) Sunday

13. $(1 + \frac{1}{2})(1 + \frac{1}{3})(1 + \frac{1}{4})(1 + \frac{1}{5}) \dots (1 + \frac{1}{2006}) = ?$
 a) $\frac{2007}{2}$ b) $\frac{2006}{5}$ c) $\frac{2007}{2006}$ d) $\frac{2005}{2004}$ e) 1004

14. **Did you know?** In a magic square the sum of the numbers in every horizontal row, vertical column and diagonal are all the same.
 The value of X is

8	1	
	5	
X		2

a) 3 b) 4 c) 5 d) 6 e) 7

15. $2^3 = 2 \times 2 \times 2$ $5^4 = 5 \times 5 \times 5 \times 5$ $1000 = 2^m \times 5^n$ find out the value of $m \times n = ?$

- a) 7 b) 12, c) 5 d) 10 e) 9

16. How many letters are there in this sentence?

- a) 25 b) 26 c) 27 d) 28 e) 36

17. What is the last digit of $1 \times 2 \times 3 \times 4 \times 5 \times 6 \times 7 \times 8 \times 9$ this product ?

- a) 1 b) 2 c) 3 d) 4 e) 0

18. A perfect number is a number that is equal to the sum of the numbers which divide into it exactly, e.g. $6 = 3 + 2 + 1$. Which of the following numbers is perfect?

- a) 12 b) 16 c) 20 d) 28 e) 10

19. $\frac{5}{6} + \frac{7}{8} = ?$

- a) $\frac{80}{48}$ b) $\frac{41}{24}$ c) $\frac{35}{6}$ d) 2 e) 1

20. If two typists can type two pages in two minutes, how many typists will it take to type 18 pages in six minutes?

- a) 3 b) 4 c) 6 d) 12 e) 18

