

HMC 2005 FIRST ROUND QUESTIONS

1. $\frac{4}{7} + \frac{5}{8} = ?$
a) $\frac{67}{54}$ b) $\frac{77}{56}$ c) $\frac{59}{48}$ d) $\frac{67}{56}$ e) $\frac{77}{54}$
2. $7 + 3 \times 12 - 8 \div 2 = ?$
a) 116 b) 39 c) 54 d) 20 e) 33
3. $0,75 \times 1,2 = ?$
a) 0,9 b) 90 c) 9 d) 0,09 e) 900
4. Junior has 19 marbles more than Sashlyn. Together they have 91 marbles. How many marbles does Sashlyn have?
a) 45 b) 36 c) 51 d) 55 e) None of these
5. Brendan has a whole bag full of 10c and 20c coins. In how many different ways can he form R1,70?
a) 6 b) 9 c) 8 d) 10 e) 7
6. The four digits of a four digit number add up to 34. How many such four-digit numbers are there?
a) 5 b) 10 c) 8 d) 6 e) 12
7. What fraction of the day is 270 minutes?
a) $\frac{3}{16}$ b) $\frac{1}{6}$ c) $\frac{9}{32}$ d) $\frac{7}{24}$ e) $\frac{1}{8}$
8. Farmer Mondli put a rectangle around his vegetable garden to keep the goats from eating his vegetables. One side of the field was 12 m and the other was 20 m in length. If the posts had to be placed not more than 5 m apart from each other, at least how many posts did Mondli need for his garden?
a) 12 b) 14 c) 15 d) 16 e) 18

9. Which one of the following is a fraction between $\frac{5}{6}$ and $\frac{7}{8}$?
- a) $\frac{10}{13}$ b) $\frac{12}{14}$ c) $\frac{20}{25}$ d) $\frac{9}{10}$ e) $\frac{41}{58}$
10. If 6 seamen can empty 3 cargo spaces in 1 day, how many spaces can 300 seamen empty in half a day?
- a) 50 b) 75 c) 100 d) 150 e) 200
11. Bonginkosi opened his book and found that the sum of the facing pages was 137. Accordingly, which of the following is always true?
- a) The right page he opened was 67
 b) The left page he opened was an odd number
 c) The left page he opened was 69
 d) The right page he opened was not possible to be an odd
 e) None of these
12. A huge geyser is $\frac{7}{8}$ full. After 420 litres of water drawn from it, it is still half full. How many liters does the geyser hold when it is full?
- a) 1120 b) 735 c) 960 d) 840 e) None of these
13. In this magic square, five more numbers can be placed in the boxes so that the sum of the three numbers in each row, in each column, and in each diagonal is always the same. What is the number in A?
- | | | |
|----|---|----|
| 15 | | 35 |
| 50 | | |
| 25 | A | |
- a) 20 b) 10 c) 30 d) 45 e) 40
14. Find the 123rd number in the sequence 9; 13; 17; 21...
- a) 497 b) 493 c) 501 d) 499 e) 503
15. Binary is the name of famous number system which is used in computers to represent and store any kind of data. Unlike the digit positions in decimal system (units, tens, hundreds, thousands...etc.), binary system has the names of digit positions as units, twos, fours, eights and so on. Moreover the possible digit values of a binary number are only 0 and 1. Which of the binary is equivalent to decimal 19?
- a) 10110 b) 10101 c) 11001 d) 10011 e) 11010

- 16.** This morning at 8:00, my watch was 3 minutes slow, but at 15:00 it was 7 minutes fast! At what time was it exactly correct?
a) 10:06 b) 10:48 c) 11:30 d) 10:27 e) 11:09
- 17.** Three ducks and two ducklings weigh 32 kg. Four ducks and three ducklings weigh 44 kg. All ducks weigh the same and all ducklings weigh the same. What is the weigh of two ducks and one duckling?
a) 16 b) 18 c) 20 d) 22 e) 24
- 18.** A rectangular chalk board is 3 times as long as its wide. If it were 5 meters shorter and 3 meters wider, it would be square. What is the area of the chalk board?
a) 36 b) 40 c) 18 d) 42 e) 48
- 19.** $\langle \rangle$ is a computing instruction that gives the following results :
 $3\langle \rangle 5=11$; $2\langle \rangle 7=10$; $4\langle \rangle -6=-28$; $6\langle \rangle 9=50$; $7\langle \rangle 5=31$; $8\langle \rangle -7=a$; $2\langle \rangle b=0$
If a and b are integers, the result of the operation $a\langle \rangle b$ is
a) -108 b) -112 c) -116 d) -120 e) -124
- 20.** The weather during Ephesus's vacation was strange.
- It rained on 15 different days, but it never rained for a whole day.
 - Rainy mornings were followed by clear afternoons.
 - Rainy afternoons were proceeded by clear mornings.
 - There were 12 clear mornings and 13 clear afternoons in all.
- How long was the vacation?
a) 22 b) 24 c) 25 d) 27 e) None of these