

UNIT 1: Real Numbers

Level 1

1 Which of the following numbers is rational?

- A $\sqrt{14}$ B $\sqrt{15}$ C $\sqrt{16}$ D $\sqrt{17}$ E $\sqrt{18}$



2 If n is a positive integer, which of the following is/are even?

(1) 2^{n-1}

(2) 3^n

(3) $3 \cdot 2^n$

A (1) only

D (2) and (3) only

B (3) only

E (1), (2) and (3)

C (1) and (2) only



3 x is a multiple of 3 and y is a multiple of 6. Which of the following is/are true?

(1) $x + y$ is a multiple of 3.

(2) xy is a multiple of 6.

(3) xy is a multiple of 18.

A (1) only

D (2) and (3) only

B (3) only

E (1), (2) and (3)

C (1) and (2) only



[4] Which of the following is irrational?

A $0.\dot{2}$

B \log_{10}

C $\sin 30^\circ$

D π

E $\sqrt{225}$



5 The product of the three smallest natural numbers is equal to

A 6

B 8

C 12

D 18

E 24



6 Correct 0.07676 to 3 significant figures.

A 0.08

B 0.077

C 0.0767

D 0.0768

E 0.07676



7 Evaluate $3 \div 7$ correct to 4 significant figures.

A 0.428

B 0.4285

C 0.4286

D 0.429

E 0.43



8 Of the numbers from 1 to 30, the sum of the two largest prime numbers equals

- A 29 B 48 C 50 D 52 E 56



9 If the H.C.F of a and b is 3, $a + b$ must be divisible by

- A 3 B 6 C 9 D 3 and 6 E 3, 6 and 9



10 If n is even, which of the following must be odd?

- A n^2 D $n^2 + n$
B $(n-1)^2 - 1$ E $n\sqrt{n+1}$
C $(n-1)^2 + 1$

Level 2

11 If $1900 < x^2 < 2000$ and x is a positive integer, $x =$

- A 42 B 43 C 44 D 45 E 46



12 If p, q and r are consecutive odd integers, which of the following must be true?

- A $p + q + r$ is even. D pqr is even.
B $p + q + r$ is divisible by 3. E pqr is divisible by 6.
C $p + q + r$ is divisible by 6.



13 If $x^3 + 1$ is even, which of the following must be true?

- A x^4 is even. D x^2 is odd.
B $x^3 - 1$ is odd. E $(x+1)^{2\sqrt{x}}$ is odd.
C $(x-1)^3$ is odd.

14 The sum of four consecutive integers must be divisible by

- A 2 B 3 C 4 D 5 E 6



15 The 3-digit number $48N$ is divisible by 7. $N =$


- A 2 B 3 C 5 D 7 E 9



16 The 6-digit number $14a8b7$ is divisible by 99. $a + b =$

- A 5 B 6 C 7 D 16 E 18



- 17 Which of the following numbers lies between $\frac{2}{3}$ and $\frac{4}{5}$?
- A $\frac{4-2}{5-3}$ B $\frac{4-3}{5-2}$ C $\frac{2+5}{3+4}$ D $\frac{2+4}{3+5}$  E $\frac{6}{7}$

- 18 If $x^3 + x^2 + 1$ is odd, which of the following is/are true?

(1) x is an even integer.

(2) x is an odd integer. 

(3) x is a real number.

A (1) only

D (1) and (2) only

B (2) only

E (1), (2) and (3)

C (3) only

- 19 The product of two irrational numbers must be

A rational.

D an integer.

B irrational.


E  irrational.

C rational or irrational.

- 20 If m and n are the multiples of 2 and 3 respectively, the L.C.M. of m^2 and n^2 must be

A divisible by 36.

D divisible by 3 but not 4.

B  divisible by 6 but not 36.

E divisible by 5.

C divisible by 6 but not 12.