Cosmo School

Vacation Work for class- Ten
Chapter- One
Mathematics
Real Number

Creative Multiplication Choice Questions

1. $0.\dot{4}\dot{5}$ = What? [D.B.- 20, Dj.B.- 17, R.B.- 15]

a) $\frac{41}{99}$ b) $\frac{5}{11}$
c) $\frac{41}{90}$ d) $\frac{1}{2}$

2. What type of number is the square root of 0.0025? [D.B.- 20]

a) Recurring decimal
b) Open ended non-recurring decimal
c) Infinite decimal
d) Definite decimal

3. Which one is a rational number? [D.B.- 20]

a) $\frac{\sqrt{18}}{\sqrt{32}}$ b) $\frac{\sqrt{3}}{\sqrt{2}}$
c) $\frac{\sqrt{8}}{\sqrt{6}}$ d) $\frac{1}{\sqrt{8}}$

4. What type of number $\frac{2}{9}$ is? [My.B.- 20]

a) Rational Number
b) Irrational Number
c) Natural Number
d) Non terminating decimal

5. If a = $\sqrt{3}$ and b = $\sqrt{12}$ then which one is irrational number? [My.B.- 20]

a) a + b b) ab
c) $\frac{a}{b}$ d) $\frac{b}{a}$

6. Which of the following is irrational number? [R.B.- 20]

a) $\frac{\sqrt[3]{64}}{\sqrt{36}}$ b) $\frac{\sqrt[3]{8}}{\sqrt[3]{27}}$
c) $\sqrt{\frac{81}{625}}$ d) $\frac{\sqrt[3]{8}}{\sqrt{7}}$

7. Which one is the simple fractions of $0.\dot{3}\dot{3}$? [R.B.- 20]

a) $\frac{33}{100}$ b) $\frac{33}{90}$
c) $\frac{33}{99}$ d) $\frac{30}{90}$

8. Which one is the value of $0.3\times 0.\dot{6}$? [Dj.B.- 20]

a) $0.1\dot{8}$ b) $0.\dot{1}\dot{8}$
c) $0.\dot{2}$ d) 0.2

9. What is the value of $42.\dot{1}\dot{8}\times 0.2\dot{8}$? [C.B.- 20, S.B.- 20]

a) $0.13\dot{2}$ b) $12.1\dot{8}\dot{5}$
c) $13.25\dot{0}$ d) $11.8\dot{1}\dot{0}$

10. Which one is simple fraction of $4.7\dot{8}$? [Ctg.B.- 20]

a) $4\frac{71}{90}$ b) $4\frac{78}{9}$
c) $4\frac{78}{90}$ d) $4\frac{75}{9}$

11. Which one is rational number? [Ctg.B.- 20]

a) $\sqrt{3}$ b) $\sqrt{8}$
c) $\sqrt[3]{6}$ d) $\sqrt[3]{8}$

12. If p and q are two integers then what should be added to $p^2 + q^2$ to obtain a whole squared? [S.B.- 20]

a) $-2pq$ b) $-pq$
c) pq d) $4pq$

13. Which one is the approximate value up to three decimal places of the number 0.99973……? [J.B.- 20]

a) $0.99\dot{9}$ b) $0.9\dot{9}9$
c) 1.000 d) $0.10\dot{0}$

14. Which one is the simple fraction of $0.8\dot{3}$? [B.B.- 20]

a) $\frac{5}{6}$ b) $\frac{83}{90}$
c) $\frac{83}{99}$ d) $\frac{6}{5}$

15. What is to be added to the product of four consecutive natural numbers become a perfect square? [B.B.- 20]

a) 1 b) 4
c) 9 d) 81

16. Convert $0.\dot{2}3\dot{4}$ into common fraction. [D.B.- 19]

a) $\frac{211}{900}$ b) $\frac{234}{909}$
c) $\frac{234}{900}$ d) $\frac{26}{111}$

17. Which is the simple fraction of $0.55\dot{5}$? [R.B.- 19]

a) $\frac{5}{9}$ b) $\frac{11}{18}$
c) $\frac{11}{9}$ d) $\frac{50}{99}$

18. Which one is the simple fraction of $0.5\dot{7}$? [Dj.B.- 19]

a) $\frac{31}{45}$ b) $\frac{26}{45}$
c) $\frac{52}{99}$ d) $\frac{57}{90}$

19. What kind of number $\sqrt{\frac{12}{75}}$ is? [Dj.B.- 19]

a) Natural b) Rational
c) Irrational d) Prime

20. Which one of the following is the rational number? [Ctg.B.- 19]

a) $\frac{\sqrt{5}}{\sqrt{10}}$ b) $\frac{\sqrt{27}}{\sqrt{48}}$
c) $\frac{\sqrt{6}}{3}$ d) $\frac{\sqrt{8}}{\sqrt{7}}$

21. Which one of the following is the common fraction of $0.3\dot{1}$? [D.B.- 19]

a) $\frac{28}{99}$ b) $\frac{31}{100}$
c) $\frac{14}{45}$ d) $\frac{31}{90}$

22. Which one is the simple fraction of $3.\dot{2}$? [S.B.- 19]

a) $3\frac{1}{3}$ b) $3\frac{2}{9}$
c) $3\frac{5}{9}$ d) $3\frac{7}{9}$

23. $0.2\dot{7} + 0.\dot{3}$ = What? [J.B.- 19]

a) 5.4 b) 0.54
c) 0.61 d) 0.17

24. Which one is the irrational number? [J.B.- 19]

a) $\sqrt{9}$ b) $\sqrt{7}$
c) 0.5 d) 0.10

25. $0.\dot{4} \times 0.\dot{3}$ = What? [B.B.- 19]

a) 1.2 b) 0.12
c) 0.102 d) 0.148

26. If $a, b, c \in R; a > b > 0$ and $c < 0$. Which one of the following is correct? [B.B.- 19]

a) $ac = bc$ b) $ac > bc$
c) $ac < bc$ d) $ab < bc$

27. If x = $0.\dot{4}$ and y = $0.\dot{8}$ then- [C.B.- 19]

i. $x + y = 1.\dot{3}$
ii. $xy = \frac{32}{81}$
iii. $\frac{x}{y} = 0.5$

Which one of the following is correct?

a) i and ii b) i and iii
c) ii and iii d) i, ii and iii

28. Which one is a natural number? [All B.- 18]

a) -1 b) $\sqrt{2}$
c) $\frac{5}{2}$ d) 3

29. Which one of the following is rational number? [D.B.- 17]

a) $2\sqrt{3}$ b) $\sqrt{7}$
c) $\frac{\sqrt{3}}{\sqrt{2}}$ d) $\frac{\sqrt{12}}{\sqrt{3}}$

30. Which one of the following is a rational number? [R.B.- 17]

a) $\sqrt{11}$ b) $\frac{\sqrt{6}}{3}$
c) $\frac{\sqrt{8}}{\sqrt{7}}$ d) $\frac{\sqrt{27}}{\sqrt{48}}$

31. Which one is the rational number? [Dj.B.- 17]

a) $\sqrt{5}$ b) $\sqrt[3]{8}$
c) $\sqrt{3}$ d) $\sqrt[3]{7}$

32. Which one below is a rational number? [Ctg.B.- 17]

a) $\frac{\sqrt{12}}{3}$ b) $\frac{\sqrt{8}}{2}$
c) $\frac{5}{\sqrt{5}}$ d) $\frac{\sqrt{18}}{\sqrt{2}}$

33. Which one of the following is a rational number? [C.B.- 17]

a) $\sqrt{729}$ b) $\sqrt{11}$
c) $\frac{\sqrt{7}}{3}$ d) 3.2354678 ...

34. Which one is the simple fraction of $0.\dot{4}\dot{5}$? [Dj.B.- 17]

a) $\frac{4}{9}$ b) $\frac{9}{20}$
c) $\frac{5}{11}$ d) $\frac{9}{11}$

35. Which one of the following is simple fraction of $0.2\dot{4}$? [Ctg.B.- 17]

a) $\frac{8}{33}$ b) $\frac{11}{45}$
c) $\frac{4}{15}$ d) $\frac{8}{3}$

36. Which one is the simple fraction of $0.6\dot{9}$? [S.B.- 17]

a) $\frac{7}{11}$ b) $\frac{69}{100}$
c) $\frac{23}{30}$ d) $\frac{7}{10}$

37. Which one is the simple fraction of $0.01\dot{2}$? [J.B.- 17]

a) $\frac{11}{900}$ b) $\frac{11}{990}$
c) $\frac{11}{999}$ d) $\frac{111}{1000}$

38. In case of real number- [S.B.- 17]

i. $\sqrt{81}$ is an odd number
ii. 0.21 is an improper fraction
iii. 0 is an integer

Which one of the following is correct?

a) i and ii b) i and iii
c) ii and iii d) i, ii and iii

39. If a, b, c are real numbers than-- [R.B.- 17]

i. $a(b + c) = ab + ac$
ii. If $a < b$ than $a + c < b + c$
iii. If $a < b$ and $c < 0$ then $ac > bc$

Which one of the following is correct?

a) i and ii b) i and iii
c) ii and iii d) i, ii and iii

40. Of two irrational numbers – [B.B.- 16]

i. Sum is always an irrational number.
ii. Difference is always an irrational number.
iii. Product can be either rational or irrational.

Which one of the following is correct?

a) i and ii b) i and iii
c) ii and iii d) i, ii and iii

41. Which one is the simple fraction of $0.\dot{2}\dot{4}$? [R.B.- 16]

a) $\frac{8}{3}$ b) $\frac{8}{33}$
c) $\frac{8}{5}$ d) 5

42. Which one of the following is a rational number? [B.B.- 16]

a) $\sqrt{0.4}$ b) $\sqrt{0.9}$
c) $\sqrt{0.04}$ d) $\sqrt{0.025}$

43. Which one of the following is irrational? [Ctg.B.- 16]

a) $\frac{\sqrt{5}}{\sqrt{4}}$ b) $\frac{\sqrt{75}}{\sqrt{27}}$
c) $\frac{\sqrt{32}}{\sqrt{8}}$ d) $\frac{\sqrt{18}}{\sqrt{2}}$

44. All integers and fractional numbers are--- [J.B.- 16]

a) Irrational number
b) Rational number
c) Natural number
d) Non-negative number

45. Which one of the following is an irrational number? [D.B.- 15]

a) 4 b) $\sqrt{\frac{16}{9}}$
c) $\sqrt[3]{\frac{64}{8}}$ d) $\frac{3}{\sqrt{2}}$

46. Which one of the following is the common fraction of $0.\dot{4}\dot{5}$? [R.B.- 15]

a) $\frac{4}{9}$ b) $\frac{9}{20}$
c) $\frac{5}{11}$ d) $\frac{9}{11}$

47. Which is the lowest prime number? [J.B.- 15]

a) 0 b) 1
c) 2 d) 3

48. Which one is the simple fraction of $5.7\dot{8}$? [C.B.- 15]

a) $5\frac{78}{90}$ b) $5\frac{78}{9}$
c) $5\frac{71}{90}$ d) $5\frac{71}{9}$

49. Which one of the following is a rational number? [C.B.- 15]

a) $\sqrt{11}$ b) $\frac{\sqrt{6}}{3}$
c) $\frac{\sqrt{8}}{\sqrt{7}}$ d) $\frac{\sqrt{27}}{\sqrt{48}}$

50. What is the value of $0.5\dot{1}$? [Ctg.B.- 15]

a) $\frac{23}{45}$ b) $\frac{51}{100}$
c) $\frac{1}{2}$ d) $\frac{23}{99}$

51. Express $0.1\dot{3}$ into simple fraction. Which is correct? [S.B.- 15]

a) $\frac{13}{90}$ b) $\frac{4}{33}$

c) $\frac{13}{99}$ d) $\frac{2}{15}$

52. Which is the Rational number? [Dj.B.- 15]

a) $\sqrt{13}$ b) $\sqrt{14}$

c) $\sqrt{15}$ d) $\sqrt{16}$

53. Which one is the simple fraction of $0.6\dot{6}$? [Dj.B.- 15]

a) $\frac{20}{33}$ b) $\frac{11}{18}$

c) $\frac{61}{100}$ d) $\frac{2}{3}$

54. If p, q, r are real numbers and p < q then-- [R.B.- 15]

i. $pr < qr, when\ r > 0$

ii. $pr < qr, when\ r < 0$

iii. $pr < qr, when\ r \geq 0$

Which one of the following is correct?

a) i and ii b) i and iii

c) ii and iii d) i, ii and iii

55. In real numbers--- [Ctg.B.- 15]

i. $\sqrt{49}$ is a Prime number.

ii. 0.03 is a proper fraction.

iii. $2 + \sqrt{2}$ is a natural number.

Which one of the following is correct?

a) i and ii b) i and iii

c) ii and iii d) i, ii and iii

56. In the real number---- [S.B.- 15]

i. Square root of a number which is not perfect square is an irrational number.

ii. All positive numbers including zero are called non-negative numbers.

iii. Zero in a natural number.

Which one of the following is correct?

a) i and ii b) i and iii

c) ii and iii d) i, ii and iii

57. What is the simple fraction from of $0.\dot{3}6\dot{9}$? [Ctg.B.- 15]

a) $\frac{41}{100}$ b) $\frac{41}{101}$

c) $\frac{41}{110}$ d) $\frac{41}{111}$

58. Which one is the value of $4.3\dot{5}$?

a) $\frac{392}{90}$ b) $\frac{329}{100}$

c) $\frac{478}{90}$ d) $\frac{478}{100}$

Creative Questions:

1. $\sqrt{5}$ and 4 are two real numbers.

a) Specify which one is rational and which one is irrational.

b) Find two irrational numbers between $\sqrt{5}$ and 4.

c) Prove that, $\sqrt{5}$ is an irrational number.

2. n is a natural number then $n = 2x - 1$, where $x \in \mathbb{N}$. [Dj.B.- 16]

a) What is the natural number?

b) Show that, square of that given numbers is an odd number.

c) Prove that, when the square of that given number is divided 8 every time the remind is 1.

3. $\sqrt{5}$ and 4 are two real numbers.

a) Which number's real and which one is irrational number.

b) Find two irrational numbers between this two given numbers.

c) Prove that, $\sqrt{5}$ is an irrational number.

4. $n = 2x - 1$, where $x \in \mathbb{N}$.

a) Divide 9.5 by $2.8\dot{6}\dot{3}$.

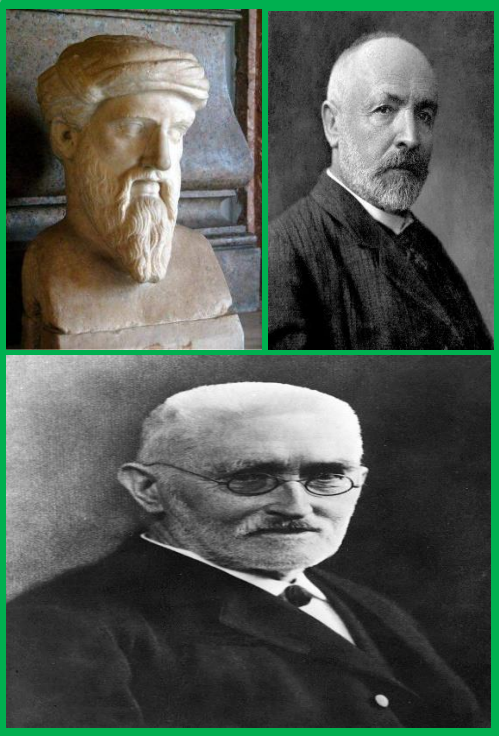
b) Show that, if n^2 divided by 8 (eight) invery case the remainder will remain 1.

c) Prove that, $\sqrt{n}$ is an irrational number, where x = 6.

Basic Information:

- During 750 – 690 B.C. Greek mathematicians gave concepts about infinite numbers.
- Do you know, the fraction method was not available until 17th century in Europe?
- Fractions were used in Egypt at 1000 B.C.
- They used to calculate with figures. This method was known as hieroglyphs.
- It is assumed that infinite numbers were first used in before 600 B.C. at Shulba Sutras

- The rule of chords, which is a Beda related book.
- At 500 B.C. Pythagoras felt the necessity to use infinite numbers for $\sqrt{2}$.
- Indian and Chinese mathematicians in the middle age and later on, the Arabian mathematicians started using Zero, Negative, Fraction and Real Numbers.
- Arabian mathematicians first adopted infinite numbers as algebraic component.
- Infinite numbers were recognized due to solution of modern decimal system and enforced that is no difference between finite and infinite numbers.
- In the 17th century Descante used the word "Real" to differentiate with imaginary numbers.
- More works were done in the 18th and 19th century π and e (transcendental) numbers were proved.
- In 1871 Georg Cantor gave a solid definition of real numbers.
- German mathematician Richard Dedekind (1831 – 1916) redefined irrational numbers by utilizing the method Dedekind cut.
- He has great contribution in different sectors of mathematics, especially in Abstract algebra, Algebraic Number Theory and in the fundamental theories of Real Number.



Pythagoras, Georg Cantor and Richard Dedekind