

SAINIK SCHOOL CHANDRAPUR

Summer Vacations Assignment

Session – 2024 – 25

Class – IX (Mathematics)

Instructions:- Assignment should be done in 100 pages notebook or project paper which should be compiled in a file. Assignment should be submitted on the very first day of reopening of the school.

Important things to remember :-

1. Learn mathematical tables from 12 to 25 to increase your calculation speed.
2. All MCQ questions should be solved in detail.
3. Complete your vacations task on daily basis. (Max 7 to 8 examples)
Don't try to complete it in one or two days.
4. Don't try to copy it from any sources, don't do calculations on mobile or calculators.
5. Don't complete your assignment on time. It is for your practice which will boost your confidence and will keep you in touch with Maths.
6. Happy Vacations, along with lots of enjoyment , daily take out 1 to 2 hours for your challenging subjects.

MCQ WORKSHEET-I
CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. Rational number $\frac{3}{40}$ is equal to:
(a) 0.75 (b) 0.12 (c) 0.012 (d) 0.075
 2. A rational number between 3 and 4 is:
(a) $\frac{3}{2}$ (b) $\frac{4}{3}$ (c) $\frac{7}{2}$ (d) $\frac{7}{4}$
 3. A rational number between $\frac{3}{5}$ and $\frac{4}{5}$ is:
(a) $\frac{7}{5}$ (b) $\frac{7}{10}$ (c) $\frac{3}{10}$ (d) $\frac{4}{10}$
 4. A rational number between $\frac{1}{2}$ and $\frac{3}{4}$ is:
(a) $\frac{2}{5}$ (b) $\frac{5}{8}$ (c) $\frac{4}{3}$ (d) $\frac{1}{4}$
 5. Which one of the following is not a rational number:
(a) $\sqrt{2}$ (b) 0 (c) $\sqrt{4}$ (d) $\sqrt{-16}$
 6. Which one of the following is an irrational number:
(a) $\sqrt{4}$ (b) $3\sqrt{8}$ (c) $\sqrt{100}$ (d) $-\sqrt{0.64}$
 7. Decimal representation of $\frac{1}{5}$ is :
(a) 0.2 (b) 0.5 (c) 0.02 (d) 0.002
 8. $3\frac{3}{8}$ in decimal form is:
(a) 3.35 (b) 3.375 (c) 33.75 (d) 337.5
 9. $\frac{5}{6}$ in the decimal form is:
(a) $0.8\bar{3}$ (b) $0.8\bar{33}$ (c) $0.6\bar{3}$ (d) $0.6\bar{33}$
 10. Decimal representation of rational number $\frac{8}{27}$ is:
(a) $0.\overline{296}$ (b) $0.29\bar{6}$ (c) $0.29\bar{6}$ (d) 0.296
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MCQ WORKSHEET-II
CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. Which one of the following is a rational number:
(a) $\sqrt{3}$ (b) $\sqrt{2}$ (c) 0 (d) $\sqrt{5}$

 2. 0.6666 in $\frac{p}{q}$ form is:
(a) $\frac{6}{99}$ (b) $\frac{2}{3}$ (c) $\frac{3}{5}$ (d) $\frac{1}{66}$

 3. $4\frac{1}{8}$ in decimal form is:
(a) 4.125 (b) $4.\overline{15}$ (c) $4.1\overline{5}$ (d) $0.\overline{415}$

 4. The value of $(3+\sqrt{3})(3-\sqrt{3})$ is:
(a) 0 (b) 6 (c) 9 (d) 3

 5. The value of $(\sqrt{5}+\sqrt{2})^2$ is:
(a) $7+2\sqrt{5}$ (b) $1+5\sqrt{2}$ (c) $7+2\sqrt{10}$ (d) $7-2\sqrt{10}$

 6. The value of $(\sqrt{5}+\sqrt{2})(\sqrt{5}-\sqrt{2})$ is:
(a) 10 (b) 7 (c) 3 (d) $\sqrt{3}$

 7. The value of $(3+\sqrt{3})(2+\sqrt{2})$ is:
(a) $6+3\sqrt{2}+2\sqrt{3}+\sqrt{6}$
(b) $3+3\sqrt{2}+3\sqrt{3}+6$
(c) $6-3\sqrt{2}-2\sqrt{3}-\sqrt{6}$
(d) $6-3\sqrt{2}+2\sqrt{3}-\sqrt{6}$

 8. The value of $(\sqrt{11}+\sqrt{7})(\sqrt{11}-\sqrt{7})$ is:
(a) 4 (b) -4 (c) 18 (d) -18

 9. The value of $(5+\sqrt{5})(5-\sqrt{5})$ is :
(a) 0 (b) 25 (c) 20 (d) -20

 10. On rationalizing the denominator of $\frac{1}{\sqrt{7}}$, we get
(a) 7 (b) $\frac{\sqrt{7}}{7}$ (c) $\frac{-\sqrt{7}}{7}$ (d) $\sqrt{7}$
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MCQ WORKSHEET-III
CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. On rationalizing the denominator of $\frac{1}{\sqrt{7}-\sqrt{6}}$, we get
(a) $\frac{\sqrt{7}+\sqrt{6}}{\sqrt{7}-\sqrt{6}}$ (b) $\frac{\sqrt{7}-\sqrt{6}}{\sqrt{7}+\sqrt{6}}$ (c) $\sqrt{7}+\sqrt{6}$ (d) $\sqrt{7}-\sqrt{6}$
2. On rationalizing the denominator of $\frac{1}{\sqrt{5}+\sqrt{2}}$, we get
(a) $\sqrt{5}-\sqrt{2}$ (b) $\sqrt{2}-\sqrt{5}$ (c) $\frac{\sqrt{5}-\sqrt{2}}{3}$ (d) $\frac{\sqrt{2}-\sqrt{5}}{3}$
3. On rationalizing the denominator of $\frac{1}{\sqrt{7}-2}$, we get
(a) $\sqrt{7}-2$ (b) $\sqrt{7}+2$ (c) $\frac{\sqrt{7}+2}{3}$ (d) $\frac{\sqrt{7}-2}{3}$
4. On rationalizing the denominator of $\frac{1}{\sqrt{2}}$, we get
(a) 2 (b) $\sqrt{2}$ (c) $\frac{2}{\sqrt{2}}$ (d) $\frac{\sqrt{2}}{2}$
5. On rationalizing the denominator of $\frac{1}{2+\sqrt{3}}$, we get
(a) $2-\sqrt{3}$ (b) $\sqrt{3}-2$ (c) $2+\sqrt{3}$ (d) $-\sqrt{3}-2$
6. On rationalizing the denominator of $\frac{1}{\sqrt{3}-\sqrt{2}}$, we get
(a) $\frac{1}{\sqrt{3}+\sqrt{2}}$ (b) $\sqrt{3}+\sqrt{2}$ (c) $\sqrt{2}-\sqrt{3}$ (d) $-\sqrt{3}-\sqrt{2}$
7. The value of $64^{\frac{1}{2}}$ is :
(a) 8 (b) 4 (c) 16 (d) 32
8. The value of $32^{\frac{1}{5}}$ is :
(a) 16 (b) 160 (c) 2 (d) 18
9. The value of $(125)^{\frac{1}{3}}$ is :
(a) 5 (b) 25 (c) 45 (d) 35
10. The value of $9^{\frac{3}{2}}$ is :
(a) 18 (b) 27 (c) -18 (d) $\frac{1}{27}$
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MCQ WORKSHEET-IV
CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. The value of $32^{2/5}$ is :
(a) 2 (b) 4 (c) 16 (d) 14
 2. The value of $16^{3/4}$ is :
(a) 4 (b) 12 (c) 8 (d) 48
 3. The value of $125^{-1/3}$ is :
(a) $\frac{1}{5}$ (b) $\frac{1}{25}$ (c) $\frac{1}{15}$ (d) $\frac{1}{125}$
 4. The value of $11^{1/2} \div 11^{1/4}$ is :
(a) $11^{1/4}$ (b) $11^{3/4}$ (c) $11^{1/8}$ (d) $11^{1/2}$
 5. The value of $64^{-3/2}$ is :
(a) $\frac{1}{96}$ (b) $\frac{1}{64}$ (c) 512 (d) $\frac{1}{512}$
 6. The value of $(125)^{2/3}$ is :
(a) 5 (b) 25 (c) 45 (d) 35
 7. The value of $25^{3/2}$ is :
(a) 5 (b) 25 (c) 125 (d) 625
 8. The value of $\frac{1}{11}$ in decimal form is:
(a) $0.0\overline{99}$ (b) $0.9\overline{09}$ (c) $0.0\overline{9}$ (d) $0.00\overline{9}$
 9. Decimal expansion of a rational number is terminating if in its denominator there is:
(a) 2 or 5 (b) 3 or 5 (c) 9 or 11 (d) 3 or 7
 10. The exponent form of $\sqrt[3]{7}$ is:
(a) 7^3 (b) 3^7 (c) $7^{1/3}$ (d) $3^{1/7}$
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MCQ WORKSHEET-V
CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. Which of the following is true?
(a) Every whole number is a natural number (b) Every integer is a rational number
(c) Every rational number is an integer (d) Every integer is a whole number
2. For Positive real numbers a and b, which is not true?
(a) $\sqrt{ab} = \sqrt{a}\sqrt{b}$ (b) $(a + \sqrt{b})(a - \sqrt{b}) = a^2 - b$
(c) $\sqrt{\frac{a}{b}} = \frac{\sqrt{a}}{\sqrt{b}}$ (d) $(\sqrt{a} + \sqrt{b})(\sqrt{a} - \sqrt{b}) = a + b$
3. Out of the following, the irrational number is
(a) $1.\bar{5}$ (b) $2.4\bar{77}$ (c) $1.2\bar{77}$ (d) π
4. To rationalize the denominator of $\frac{1}{\sqrt{a+b}}$, we multiply this by
(a) $\frac{1}{\sqrt{a+b}}$ (b) $\frac{1}{\sqrt{a-b}}$ (c) $\frac{\sqrt{a+b}}{\sqrt{a+b}}$ (d) $\frac{\sqrt{a-b}}{\sqrt{a-b}}$
5. The number of rational numbers between $\sqrt{3}$ and $\sqrt{5}$ is
(a) One (b) 3 (c) none (d) infinitely many
6. If we add two irrational numbers, the resulting number
(a) is always an irrational number (b) is always a rational number
(c) may be a rational or an irrational number (d) always an integer
7. The rationalizing factor of $7 - 2\sqrt{3}$ is
(a) $7 - 2\sqrt{3}$ (b) $7 + 2\sqrt{3}$ (c) $5 + 2\sqrt{3}$ (d) $4 + 2\sqrt{3}$
8. If $\frac{1}{7} = 0.\overline{142857}$, then $\frac{4}{7}$ equals
(a) $0.\overline{428571}$ (b) $0.\overline{571428}$ (c) $0.\overline{857142}$ (d) $0.\overline{285718}$
9. The value of n for which \sqrt{n} be a rational number is
(a) 2 (b) 4 (c) 3 (d) 5
10. $\frac{3\sqrt{12}}{6\sqrt{27}}$ equals
(a) $\frac{1}{2}$ (b) $\sqrt{2}$ (c) $\sqrt{3}$ (d) $\frac{1}{3}$
11. $(3 + \sqrt{3})(3 - \sqrt{2})$ equals
(a) $9 - 5\sqrt{2} - \sqrt{6}$ (b) $9 - \sqrt{6}$ (c) $3 + \sqrt{2}$ (d) $9 - 3\sqrt{2} + 3\sqrt{3} - \sqrt{6}$

12. The arrangement of $\sqrt{2}, \sqrt{5}, \sqrt{3}$ in ascending order is
(a) $\sqrt{2}, \sqrt{3}, \sqrt{5}$ (b) $\sqrt{2}, \sqrt{5}, \sqrt{3}$ (c) $\sqrt{5}, \sqrt{3}, \sqrt{2}$ (d) $\sqrt{3}, \sqrt{2}, \sqrt{5}$

13. If m and n are two natural numbers and $m^n = 32$, then n^m is
(a) 5^2 (b) 5^3 (c) 5^{10} (d) 5^{12}

14. If $\sqrt{10} = 3.162$, then the value of $\frac{1}{\sqrt{10}}$ is
(a) 0.3162 (b) 3.162 (c) 31.62 (d) 316.2

15. If $\left(\frac{3}{4}\right)^6 \times \left(\frac{16}{9}\right)^5 = \left(\frac{4}{3}\right)^{x+2}$, then the value of x is
(a) 2 (b) 4 (c) -2 (d) 6



PRACTICE QUESTIONS
CLASS IX : CHAPTER - 1
NUMBER SYSTEM

1. Prove that $\sqrt{5} - \sqrt{3}$ is not a rational number.
2. Arrange the following in descending order of magnitude: $\sqrt[3]{90}, \sqrt[4]{10}, \sqrt{6}$
3. Simplify the following:

(i) $(4\sqrt{3} - 2\sqrt{2})(3\sqrt{2} + 4\sqrt{3})$

(ii) $(2 + \sqrt{3})(3 + \sqrt{5})$

(iii) $(\sqrt{3} + \sqrt{2})^2$

(iv) $\left(\frac{2}{3}\sqrt{7} - \frac{1}{2}\sqrt{2} + 6\sqrt{11}\right) + \left(\frac{1}{3}\sqrt{7} + \frac{3}{2}\sqrt{2} - \sqrt{11}\right)$

4. Rationalize the denominator of the following:

(i) $\frac{2}{\sqrt{3} - \sqrt{5}}$ (ii) $\frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ (iii) $\frac{6}{\sqrt{5} + \sqrt{2}}$ (iv) $\frac{1}{8 + 5\sqrt{2}}$

(v) $\frac{3 - 2\sqrt{2}}{3 + 2\sqrt{2}}$ (vi) $\frac{\sqrt{3} - 1}{\sqrt{3} + 1}$ (vii) $\frac{4}{\sqrt{7} + \sqrt{3}}$ (viii) $\frac{1}{5 + 3\sqrt{2}}$

5. Rationalise the denominator of the following:

(i) $\frac{2}{3\sqrt{3}}$ (ii) $\frac{16}{\sqrt{41} - 5}$ (iii) $\frac{\sqrt{5} + \sqrt{2}}{\sqrt{5} - \sqrt{2}}$

(iv) $\frac{\sqrt{40}}{\sqrt{3}}$ (v) $\frac{3 + \sqrt{2}}{4\sqrt{2}}$ (vi) $\frac{2 + \sqrt{3}}{2 - \sqrt{3}}$

(vii) $\frac{\sqrt{6}}{\sqrt{2} + \sqrt{3}}$ (viii) $\frac{3\sqrt{5} + \sqrt{3}}{\sqrt{5} - \sqrt{3}}$ (ix) $\frac{4\sqrt{3} + 5\sqrt{2}}{\sqrt{48} + \sqrt{18}}$