

UNIT TEST PAPER

Numbers

1. Given that $a = 3\sqrt{7}$, $b = 2\sqrt{7}$, and $c = \sqrt{7}$, verify that

(i) $a + b = b + a$

(ii) $a \times c = c \times a$

(iii) $a + (b + c) = (a + b) + c$

(iv) $a \times (b + c) = (a \times b) + (a \times c)$

(v) $a \times (b - c) = (a \times b) - (a \times c)$

(vi) $a - b \neq b - a$

(vii) $a(b - c) \neq b(a - c)$

2. Simplify the following expressions.

(i) $(+3) \times (-5) - (-2)$ of $(+6) \div (-4) + (-7)$ of (-2)

(ii) $(-2)(+3) - [7 - 2\{9 - (8 - 6 - \overline{2 - 5})\}] \div 4$

(iii) $\frac{1\frac{3}{5} - \frac{1}{2}}{3\frac{1}{3} - 1\frac{2}{15}} - \frac{1\frac{2}{3} - \frac{3}{7}}{2\frac{1}{7} + 1\frac{4}{7}}$

(iv) $\left[\frac{1}{2} - \frac{1}{5} \left\{ 1\frac{1}{7} + \frac{6}{7} \left(\frac{9}{14} - 1\frac{1}{6} - \frac{6}{7} \right) \right\} \right] \div 1\frac{2}{7}$

(v) $\frac{0.89 \times 1.66}{4.15 \times 1.78} \div \frac{4}{5}$

(vi) $1 - 0.5$ of $[1.8 - \{1.5 - 0.7$ of $(2.75 - 2.63 - 1.28)\}] \div 1.3]$

(vii) $\frac{3.375^2 - 2.125^2}{6.75^2 - 2 \times 6.75 \times 4.25 + 4.25^2}$

3. Find the HCF of the following numbers.

(i) 546, 637, 728, and 819

(ii) 792, 1512, 1728, and 1368

(iii) 6273, 6642, 7011, and 7380

(iv) 17175, 17862, 18549, and 19236

(v) $4\frac{2}{3}$, $10\frac{1}{2}$, and $\frac{21}{24}$

(vi) $1\frac{1}{5}$, $1\frac{5}{7}$, and $4\frac{4}{5}$

(vii) 7.2, 12.96, and 10.08

(viii) 2.73, 2.31, and 3.15

4. Find the LCM of the following numbers.

(i) 570, 228, and 380

(ii) 1008, 756, and 864

(iii) 221, 153, and 117

(iv) 2376, 3960 and 3168

(v) $\frac{5}{6}$, $\frac{5}{18}$, and $2\frac{1}{2}$

(vi) $\frac{2}{5}$, $\frac{9}{10}$, and $\frac{3}{10}$

(vii) 0.78, 0.66, and 1.43

(viii) 0.21, 1.155, and 0.77

5. Find the greatest number that divides 24307, 25091, and 25875 leaving exactly 3 as remainder in each case.

6. Find the greatest 7-digit number that can be divided by 10368, 6912 as well as 8640 exactly.

7. Convert the following common fractions into decimals, correct up to 3 decimal places.

(i) $\frac{8}{9}$

(ii) $\frac{7}{13}$

(iii) $1\frac{4}{9}$

(iv) $2\frac{7}{15}$

(v) $4\frac{1}{17}$

8. Convert the following decimals into common fractions.

(i) 0.0875

(ii) 0.15625

(iii) 0.5

(iv) 6.45

(v) 3.252

9. A man wins Rs 34,00,000 in a lottery and donates $\frac{11}{17}$ of the money to a charitable institution. The

charitable institution uses $\frac{2}{5}$ part of the donation

to buy an ambulance and $\frac{1}{6}$ part of the remaining money to build a dispensary. How much did it cost to build the dispensary?

10. $\frac{2}{3}$ books in a library are works of fiction, out of which $\frac{1}{5}$ are in Hindi. If there are 4640 works of fiction that are not in Hindi, how many books are there in the library?

11. If 15 mg of baking soda makes up 0.0000125 part of the weight of a cake, how much does the cake weigh?
12. Divide Rs 13878 between A, B, and C such that A's share is 0.65 part of B's share and C's share is 0.92 part of B's share.
13. Write the following decimal numbers in expanded form as multiples of powers of 10.
- (i) 1.1 (ii) 10.01
(iii) 100.001 (iv) 1000.0001
(v) 1000000 (vi) 0.000001
14. Write the scientific notation for the following numbers.
- (i) 38000 (ii) 67001
(iii) 4800000 (iv) 720003
(v) 621000000 (vi) 621000400
15. Write the scientific notation for the following numbers.
- (i) 0.02 (ii) 0.00043
(iii) 0.78 (iv) 0.000008
(v) 0.000000700 (vi) 0.000070003
16. Round off the following decimals to 2 significant digits.
- (i) 6.36 (ii) 0.2237
(iii) 5.019003 (iv) 0.007091
(v) 0.001003005
17. Light travels at a speed of 299792500 m/s. Write the speed of light in scientific notation.
18. If the distance between Earth and Mars is 78000000 km, write this distance in scientific notation.
19. The weight of a proton in kilograms is written in scientific notation as 1.67252×10^{-27} kg. Write the scientific notation for the weight of a proton in grams.
20. Find the square roots of the following by the division method.
- (i) 47089 (ii) 60516
(iii) 61009 (iv) 776161
(v) 1572516 (vi) $\frac{529}{1369}$
(vii) $\frac{3721}{5041}$ (viii) 73.96
(ix) 22.8484 (x) 1.030225
21. Find the smallest and the greatest 8-digit numbers that are perfect squares.