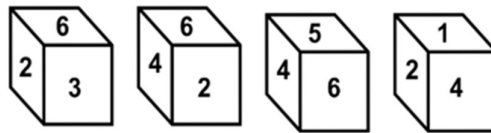


1. Find the missing number in place of the question mark (?), if the same rule is followed row-wise or column-wise.

8	18	24
13	30	?
12	48	96

- (a) 40 (b) 60 (c) 84 (d) 65
2. Four different positions of the same die are shown. Which number is on the face opposite to 6 ?



- (a) 4 (b) 1 (c) 2 (d) 3
3. Find the missing number, if same rule is followed in all the three figures.



- (a) 18 (b) 20 (c) 17 (d) 19
4. What is the multiplicative inverse of $a - \frac{1}{a}$?
- (a) $a + \frac{1}{a}$ (b) $\frac{1}{a} - a$ (c) $\frac{a}{a-1}$ (d) $\frac{a}{a^2-1}$
5. If the number 2345p60q is exactly divisible by 3 and 5, then the maximum value of p + q is _____.
 (a) 12 (b) 13 (c) 14 (d) 15
6. If a, b, c, and d are four positive real numbers such that sum of a, b, and c is even and the sum of b, c, and d is odd, then $a^2 - d^2$ is necessarily _____.
 (a) Odd (b) Even (c) Prime (d) Either (a) or (b)

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7. If m is prime, then n is a composite number and $m + n = 240$ also their LCM is 4199. Find m and n .
 (a) 13, 227 (b) 17, 223 (c) 19, 221 (d) 23, 217
8. If $5^{n-3} = 625$, then 5^{n+3} is _____ .
 (a) 5^{12} (b) 5^9 (c) 5^{10} (d) 5^{15}
9. Find the value of $(0.00243)^{\frac{3}{5}} + (0.0256)^{\frac{3}{4}}$.
 (a) 0.083 (b) 0.073 (c) 0.091 (d) 0.081
10. Simplified form of $\frac{\left(p + \frac{1}{q}\right)^{(p-q)} \left(p - \frac{1}{q}\right)^{(p+q)}}{\left(q + \frac{1}{p}\right)^{(p-q)} \left(q - \frac{1}{p}\right)^{(p+q)}} =$ _____ .
 (a) $\left(\frac{p}{q}\right)^{2q}$ (b) $\left(\frac{q}{p}\right)^{2q}$ (c) $\left(\frac{p}{q}\right)^p$ (d) $\left(\frac{q}{p}\right)^q$
11. If $\frac{1}{(243)^x} = (729)^y = 3^3$, then find the value of $5x + 6y$.
 (a) 33 (b) 99 (c) 297 (d) 0
12. If $a^2 + b^2 + c^2 = 29$, $ab + bc + ca = 26$ and $a, b, c \in \mathbb{N}$, then find $a + b + c$.
 (a) 9 (b) 6 (c) 7 (d) 10
13. If $3x - \frac{y}{5} = 10$ and $xy = 5$, then find $27x^3 - \frac{y^3}{125}$.
 (a) 1060 (b) 1090 (c) 112 (d) 1000
14. Find the HCF of the polynomials $6(x^2 - 36)$ and $36(x + 6)$.
 (a) $6(x + 6)$ (b) $6(x - 6)$ (c) $(x + 6)$ (d) $(x - 6)$

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15. If $x^2 + y^2 - xy = 3$ and $y - x = 1$, then find $\frac{xy}{x^2 + y^2}$.
- (a) $\frac{2}{5}$ (b) $\frac{5}{2}$ (c) $\frac{3}{5}$ (d) $\frac{5}{3}$
16. If $7^{(5x-8)} \times 5^{(x+2)} = 30625$, then find x, an integer.
17. In a certain code language,
 '134' means 'good and tasty';
 '478' means 'see good pictures' and
 '729' means 'pictures are faint'.
 Which of the following digits stands for 'see'?

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