Rational Numbers

MATHEMATICAL REASONING

1. Divide the sum of $\frac{65}{12}$ and $\frac{12}{7}$ by their difference.

(A) $\frac{599}{311}$ (B) $\frac{680}{216}$

(C) $\frac{642}{133}$ (D) $\frac{501}{301}$

2. The sum of the additive inverse and multiplicative inverse of $\frac{1}{5}$ is _____.

(A) $\frac{24}{5}$ (B) $-\frac{24}{5}$ (C) 25 (D) –25

3. The sum of two rational numbers is –1. If one of the numbers is $\frac{-5}{4}$, then find the other number.

(A) $\frac{1}{4}$ (B) $\frac{3}{4}$ (C) $\frac{4}{5}$ (D) $\frac{5}{7}$

4. If a = 5, then the value of $\left(2a-\frac{5a-1}{3}\right)$ is _____.

(A) $\frac{1}{2}$ (B) 0 (C) 2 (D) $\frac{3}{2}$

5. The additive inverse of $-\frac{7}{5}$ is _____.

(A) $\frac{5}{7}$ (B) 0 (C) 1 (D) $\frac{7}{5}$

6. Which of the following properties of rational numbers is shown below?

$\frac{3}{4}\times\left(\frac{7}{3}\times\frac{-4}{5}\right)=\left(\frac{3}{4}\times\frac{7}{3}\right)\times\frac{-4}{5}$.

(A) Commutativity of addition
(B) Associativity of multiplication
(C) Distributivity of multiplication over addition
(D) Distributivity of addition over multiplication

7. If $x=\frac{5-6\times4-1}{2-5}$, then $|-x|$ is equal to _____.

(A) $\frac{20}{3}$ (B) $-\frac{20}{3}$ (C) 0 (D) 1

8. Which of the following options is true?

(A) $\frac{5}{7}<\frac{7}{9}<\frac{9}{11}<\frac{11}{13}$ (B) $\frac{11}{13}<\frac{9}{11}<\frac{7}{9}<\frac{5}{7}$

(C) $\frac{5}{7}<\frac{11}{13}<\frac{7}{9}<\frac{9}{11}$ (D) $\frac{5}{7}<\frac{9}{11}<\frac{11}{13}<\frac{7}{9}$

9. The rational number which is not lying between $\frac{5}{16}$ and $\frac{1}{2}$ is _____.

(A) $\frac{3}{8}$ (B) $\frac{7}{16}$ (C) $\frac{1}{4}$ (D) $\frac{13}{32}$

10. Simplify: $\left(\frac{3}{11}\times\frac{5}{6}\right)-\left(\frac{9}{12}\times\frac{4}{3}\right)+\left(\frac{5}{13}\times\frac{6}{15}\right)$

(A) $-\frac{177}{286}$ (B) $-\frac{303}{40}$

(C) $\frac{289}{492}$ (D) $\frac{17}{24}$

11. What should be subtracted from $\left(1+\frac{3}{10}\right)$ to get $\frac{5}{6}$?

(A) $\frac{9}{20}$ (B) $\frac{7}{15}$ (C) $\frac{2}{7}$ (D) $\frac{5}{8}$

12. Which of the following is not a rational number?

(A) $\frac{0}{3}$ (B) $\frac{5}{0}$ (C) $\frac{7}{1}$ (D) $\frac{1}{7}$

13. If $x = \frac{2}{3}$ and $y = \frac{3}{2}$, then find the value of $(x + y) \div (x - y)$.

(A) $\frac{15}{2}$ (B) $-\frac{13}{5}$ (C) $\frac{17}{6}$ (D) $-\frac{11}{6}$

14. If $x = -\frac{4}{11}$, then which of the following rational number lies between x and $|x|$?

(A) $\frac{7}{13}$ (B) $-\frac{11}{15}$ (C) $-\frac{2}{11}$ (D) $\frac{5}{8}$

EVERYDAY MATHEMATICS

15. Mr Sharma deposited ₹ 256000 in his account. Two days later, he withdraw $\frac{2}{5}$ of the amount and $\frac{3}{4}$ of the remaining amount on the next day. Find the amount left in his account.

(A) ₹ 24520
(B) ₹ 38400
(C) ₹ 14820
(D) ₹ 14680

16. One chocolate milk shake recipe requires $\frac{3}{4}$ jug of milk. Another recipe for the same chocolate milk shake requires 3 cups of milk. If 1 cup is equivalent to $\frac{1}{8}$ jug, then how much more milk does the first recipe require?

(A) $\frac{4}{5}$ jug (B) $\frac{6}{5}$ jug
(C) $\frac{3}{8}$ jug (D) $\frac{5}{8}$ jug

17. The length of wingspans of different species of birds is given below.

Species of birds	Blue jay	Golden eagle	Seagull	Albatross
Length of wingspans	$\frac{41}{100}$ m	$2\frac{1}{2}$ m	$1\frac{7}{10}$ m	$3\frac{3}{5}$ m

How much longer is the wingspan of a Golden eagle than the wingspan of a Blue jay?

(A) $\frac{209}{100}$ cm (B) $\frac{209}{100}$ m
(C) $\frac{9}{100}$ m (D) $\frac{215}{100}$ cm

ACHIEVERS SECTION (HOTS)

18. Match the following.

	Column-I	Column-II
(P)	Product of a rational number and its reciprocal is	(i) –1
(Q)	If $\frac{12}{30}$ and $\frac{x}{5}$ are equivalent, then x =	(ii) 0
(R)	$\left[\frac{8}{21} \div \left(\frac{-32}{39} \div \frac{16}{13}\right)\right] \times \frac{7}{4} =$	(iii) 2
(S)	Sum of a rational number and its additive inverse is	(iv) 1

(A) (P) → (iv); (Q) → (iii); (R) → (i); (S) → (ii)
(B) (P) → (i); (Q) → (iii); (R) → (iv); (S) → (ii)
(C) (P) → (iv); (Q) → (iii); (R) → (ii); (S) → (i)
(D) (P) → (i); (Q) → (iv); (R) → (iii); (S) → (ii)

19. Fill in the blanks.

(i) 0 is neither **P** nor **Q**.
(ii) **R** has/have no reciprocal.
(iii) The rational numbers **S** and **T** are equal to their reciprocal.

	P	Q	R	S	T
(A)	Positive	negative	1	1/2	–1/2
(B)	Integer	rational	0	–1	0
(C)	Positive	negative	0	1	–1
(D)	Natural	integer	–1	1	–1

20. Which of the following options holds?

Statement - 1 : Rational numbers are closed under division.

Statement - 2 : The value of $\left(\frac{-7}{18}\times\frac{15}{-7}\right)-\left(1\times\frac{1}{4}\right)+\left(\frac{1}{2}\times\frac{1}{4}\right)$ is $\frac{17}{24}$.

(A) Both Statement - 1 and Statement - 2 are true.
(B) Statement - 1 is true but Statement - 2 is false.
(C) Statement - 1 is false but Statement - 2 is true.
(D) Both Statement - 1 and Statement - 2 are false.

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