

7. UNDERSTANDING ①

RATIONAL NUMBERS

Class: VI, MATHEMATICS

FOUNDATION. SOLUTIONS

(2025/26)

TEACHING TASK

JEE MAINS LEVEL

01. $\sqrt{2}$

Ans: C

02 Conceptual

Ans: C

03

$$\frac{2}{5} \times \frac{3}{3} = \frac{6}{15} ; \frac{3}{5} \times \frac{3}{3} = \frac{9}{15}$$

$$\therefore \frac{6}{15} < \frac{8}{15} < \frac{9}{15}$$

$$\text{Also, } \frac{2}{5} \times \frac{2}{2} = \frac{4}{10} ; \frac{3}{5} \times \frac{2}{2} = \frac{6}{10}$$

$$\therefore \frac{4}{10} < \frac{5}{10} < \frac{6}{10}$$

Ans: B, C

04 Conceptual

Ans: ~~B~~ C

05 Conceptual

Ans: A

06

$$\frac{12\frac{3}{4}}{7\frac{2}{3}} = \frac{51}{4} \times \frac{3}{23} = \frac{153}{92} = 1\frac{61}{92}$$

Ans: C

07

$$a + b = 12$$

$$ab = 35$$

$$\frac{a+b}{ab} = \frac{12}{35} \Rightarrow \frac{1}{a} + \frac{1}{b} = \frac{12}{35}$$

Ans. B

(2)

08

$$\frac{1}{6}$$

Ans. B

09

$$-\frac{19}{4} + \frac{31}{12}$$

$$= -\frac{57}{12} + \frac{31}{12} = -\frac{26}{12} = -\frac{13}{6}$$

Ans. C

10

$$x \times -\frac{4}{15} = -\frac{9}{16}$$

$$\therefore x = \frac{9}{16} \times \frac{15}{4} = \frac{135}{64}$$

Ans. C

JEE ADVANCED LEVEL

01. Conceptual

Ans. A, B, C

02. Conceptual

Ans. B, C

03. Statement I: Conceptual (True)Statement II: Conceptual (False)

Ans. C

04

$$\text{Statement I: } \frac{\left(\frac{1}{4} + \frac{1}{2}\right)}{2} = \frac{3}{8} \text{ (True)}$$

Statement II: Conceptual (True)

Ans. A

05

Assertion: Conceptual (True)Reason: Conceptual (True)

Ans. A



06

Assertion: $-\frac{2}{3} < -\frac{1}{2}$
 $\Rightarrow -4 < -3$ (True)

Reason: Conceptual (False)

Ans: C

07

$$\frac{7}{9} + \frac{5}{6}$$

$$= \frac{42+45}{54} = \frac{87}{54} = \frac{29}{18}$$

Ans: —

08

Conceptual

Ans: C

09

$$\frac{2}{5} + \frac{1}{10}$$

$$= \frac{4+1}{10} = \frac{5}{10} = \frac{1}{2}$$

Ans: —

10

Total income = $\frac{1}{2}$

Expenditure = $\frac{1}{2}$

left unaccounted = $\frac{1}{2} - \frac{1}{2} = 0$

Ans: B

11

$$\frac{a}{b} = \frac{11}{10} - \frac{2}{5}$$

$$= \frac{11-4}{10} = \frac{7}{10} \therefore a = 7$$

Ans: 7

12

$$\left(\frac{2}{3} + \frac{3}{5} + \frac{7}{12}\right) \text{ hr} = \frac{111}{60} \text{ hr}$$

$$= \frac{111}{60} \times 60 \text{ min}$$

$$= 111 \text{ min}$$

Ans: 111

13 a) 0 (q)

b) $\frac{1}{2}$ (p)

c) 0 (q)

d) 1 (r)

Ans: q, p, q, r

14 a) $\frac{1}{4} \times \left(\frac{2}{3} + \frac{1}{3}\right) = \frac{1}{4} \times \frac{3}{3} = \frac{1}{4}$ (r)

b) $\frac{5}{2} \div \left(\frac{2}{1} \times \frac{1}{3}\right) = \frac{5}{2} \times \frac{3}{2} = \frac{15}{4}$ (s)

c) $\frac{4}{9} \times \frac{6}{24} \div \frac{2}{3} = \frac{1}{9} \times \frac{3}{2} = \frac{1}{6}$ (p)

d) 1 (q)

Ans: r, s, p, q

LEARNERS TASK (CUES)

01 Conceptual

Ans B

02 $-\frac{2}{3} + \frac{5}{6}$

$= \frac{-4+5}{6} = \frac{1}{6}$

Ans: B

03 1

Ans B

04 $\sqrt{4} = \frac{2}{1}$

Ans B

05 $\frac{a}{b} = \frac{\left(\frac{-7}{4}\right)}{\left(\frac{-3}{5}\right)} = \frac{-7}{4} \times \frac{5}{3} = \frac{-35}{12}$

Ans: —



06 | Conceptual

Ans: D

07	Conceptual
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Ans. D

08	Conceptual
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Ans: D

$$09 \quad \left| \quad \frac{-13}{3} \times \frac{9}{9} = \frac{-117}{27} \right.$$

Ans: C

10	$\frac{-4}{9} = \frac{-16}{x} \Rightarrow x = 36$
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Ans: A

JEE MAINS LEVEL

01	Conceptual
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Ans. A

02 | 0

Ans: A

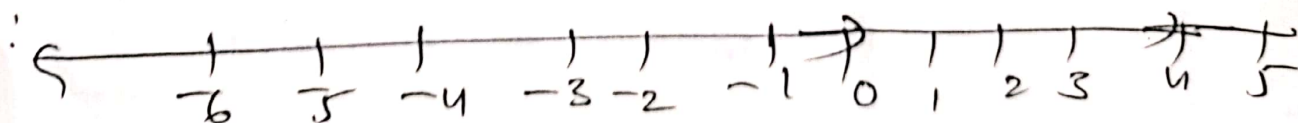
03	Conceptual
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Ans. D

04 $\frac{\left(\frac{2}{3} + \frac{3}{4} + \frac{5}{6}\right)}{3} = \frac{8+9+10}{12 \times 3} = \frac{27}{36} = \frac{3}{4}$

Ans: —

$$\boxed{05} \quad -\frac{3}{4} \times \frac{2}{2} = -\frac{6}{8} \quad \& \quad \frac{5}{8}$$



$$\frac{\left(\frac{-6}{8} + \frac{5}{8}\right)}{2} = \frac{-1}{16}$$

Ans: C

06 Given $-\frac{2}{3} = -0.66$ & -1 .

(6)

option: B

$$\begin{array}{l} -\frac{13}{18} = -0.72 \checkmark \\ -\frac{7}{9} = -0.77 \checkmark \end{array} \left| \begin{array}{l} -\frac{5}{6} = -0.83 \checkmark \\ -\frac{8}{9} = -0.88 \checkmark \\ -\frac{17}{18} = -0.94 \checkmark \end{array} \right.$$

Ans: B

07 $\frac{5}{2} \times x = \frac{10}{1} \Rightarrow x = 2$

Ans: A

08 $-\frac{1}{3} \times \frac{3}{3} = -\frac{3}{9}$; $-\frac{4}{3} \times \frac{3}{3} = -\frac{12}{9}$, $-\frac{2}{9}$

Descending order: $-\frac{2}{9} > -\frac{3}{9} > -\frac{12}{9}$

$-\frac{2}{9} > -\frac{11}{9} > -\frac{4}{3}$

Ans: A

09 $-\frac{17}{18} \times (-3) \times \frac{108}{30} = \frac{51}{5}$

Ans: B

10 $= \frac{7}{2} + \frac{5}{6} + \frac{3}{4}$

$= \frac{42 + 10 + 9}{12} = \frac{61}{12} = 5\frac{1}{12}$

Ans: D

JEE ADVANCED

01 $-\frac{2}{5}$, $\frac{0}{1}$, $\frac{1}{10}$

Ans: A, B, D



02. A) $\frac{1}{2} > \frac{1}{3} \Rightarrow 3 > 2$ (True) ⑦
 B) $-\frac{3}{5} < -\frac{1}{5} \Rightarrow -15 < -5$ (True)
 C) $\frac{4}{6} = \frac{2}{3}$ (True)
 D) $\frac{3}{8} > \frac{4}{9} \Rightarrow 27 > 32$ (False)
 Ans. A, B, C

03 Statement I: Conceptual (True)
Statement II: Conceptual (False) Ans. C

04 Statement I: Conceptual (False)
Statement II: Mathematically (True) Ans. D

05 Assertion: Mathematically (False)
Reason: Conceptual (False) Ans. B

06 Assertion: Mathematically (True)
Reason: Conceptual (True) Ans. A

07 $-\frac{2}{3} = -0.66$ $\frac{1}{2} = 0.5$
 A) $-\frac{1}{2} = -0.5$ ✓, 0 ✓; $\frac{1}{4} = 0.25$ ✓
 Ans. A

08 Conceptual Ans. C

09 $-\frac{5}{6} \times \frac{3}{10} = -\frac{1}{4}$ or $-\frac{15}{60}$ Ans. A, B



10 Conceptual

Ans: A

11. $x = \frac{3}{4} \Rightarrow x^2 = \frac{9}{16}$

8

$$E = x + \frac{1}{x} + x^2 + \frac{1}{x^2}$$

$$= \frac{3}{4} + \frac{4}{3} + \frac{9}{16} + \frac{16}{9}$$

$$= \frac{637}{144}$$

$$\therefore 16E = 16 \times \frac{637}{144} = 70.77.$$

Ans: 70

12 $\frac{1}{4} \times \frac{3}{3} = \frac{3}{12}$; $\frac{2}{3} \times \frac{4}{4} = \frac{8}{12}$

$$\frac{3}{12}, \frac{4}{12}, \frac{5}{12}, \frac{6}{12}, \frac{7}{12}, \frac{8}{12}$$

Ans: 4

13 a) $\frac{0}{1}, \frac{-1}{5}$ (P, x)

b) $\frac{3}{7}$ (q)

c) $\frac{0}{1}$ (P)

d) $\frac{7}{16}$ (s)

Ans: (Ax), q, P, S

14 a) 1 (x)

b) $\frac{1}{2}$ ()

c) 1 (x)

d) $\frac{6}{7} \times \frac{7}{2} = 3$ (s)

Ans: x, -, x, S

$\Rightarrow$ THE END