Chap # 2

Maths 7th Date ☐☐☐☐☐☐ Ex # 2.1 Pg # 1

Q.1 Write "T" for a true and "F" for a false statement.

(i) Positive numbers are rational numbers. T

(ii) "0" is not a rational numbers. F

(iii) An integer is expressed in $\frac{p}{q}$ from. F

(iv) Negative numbers are not rational numbers. F

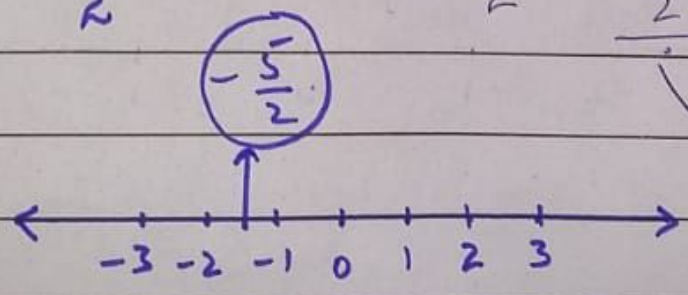
(v) In any rational number $\frac{p}{q}$, q can be zero. F

Q.2 Represent each rational number on the number line.

(i) $\frac{-5}{2} = -2\frac{1}{2}$

$$2 \overline{)5} \quad 2$$
$$4$$
$$1$$

Sol.



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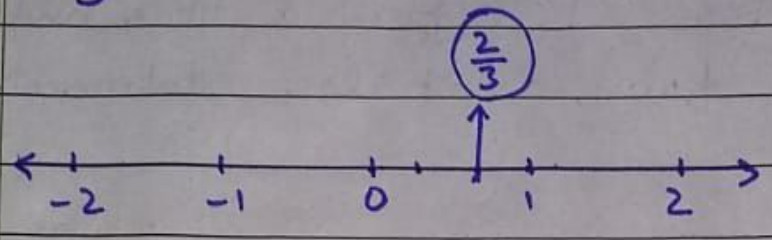
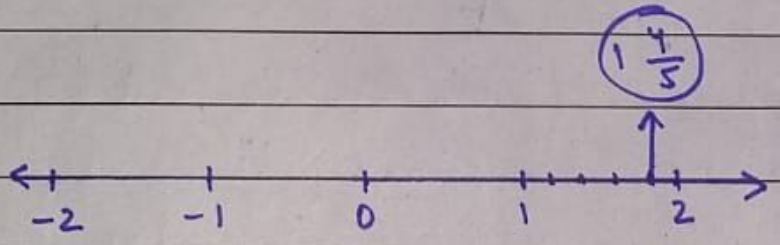
(ii) $\frac{2}{3}$

Sol =



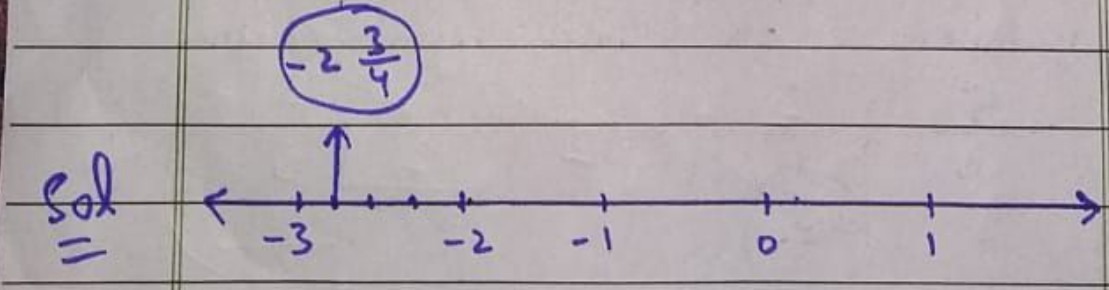
(iii) $1\frac{4}{5}$

Sol =



(iv) $-2\frac{3}{4}$

Sol =



(vii) $\frac{3}{2} \div \frac{4}{9} \times \frac{16}{81}$

Sol

$= \frac{3}{2} \times \frac{9}{4} \times \frac{16}{81}$

$= \frac{2}{3}$ Ans.

(viii) $\frac{8}{9} \div \frac{2}{3} \times \frac{15}{28}$

Sol

$= \frac{8}{9} \times \frac{3}{2} \times \frac{15}{28}$

$= \frac{5}{7}$ Ans.

(ix) $\frac{8}{125} \div \frac{16}{75}$

Sol

$= \frac{8}{125} \times \frac{75}{16}$

$= \frac{3}{10}$ Ans.

(x) $\frac{1}{5} \times \left[-\frac{2}{5}\right] \times \left[\frac{-100}{32}\right]$

Sol

$= \frac{1}{5} \times \frac{-2}{5} \times \frac{-100}{32}$

$= \frac{1}{16} = \frac{1}{4}$ Ans.

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(xi) $\frac{1}{1000} \times \left[-\frac{1}{100}\right]$

Sol

$= \frac{1}{1000} \times \frac{-100}{1}$

$= \frac{1}{10}$ Ans

(xii) $-\frac{1}{2} \times \frac{3}{5} \div \left[-\frac{51}{40}\right]$

Sol $= -\frac{1}{2} \times \frac{3}{5_1} \times \frac{-40^8}{51_{17}}$

$= -\frac{1}{1\cancel{2}} \times \frac{-8^4}{17}$

$= \frac{4}{17}$ Ans

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Q.3: Simplify.

(i) $\frac{8}{9} \times \frac{3}{4}$

Sol $= \frac{{}^{2}\cancel{8}}{{}_{3}\cancel{9}} \times \frac{\cancel{3}^{1}}{\cancel{4}_{1}}$

$= \frac{2}{3}$ Ans

(ii) $\frac{50}{51} \times \frac{7}{10}$

Sol $= \frac{{}^{5}\cancel{50}}{51} \times \frac{7}{\cancel{10}_{1}}$

$= \frac{5 \times 7}{51}$

$= \frac{35}{51}$ Ans

(iii) $\frac{121}{169} \times \frac{11}{13}$

Sol $= \frac{{}^{11}\cancel{121}}{{}_{13}\cancel{169}} \times \frac{\cancel{11}^{1}}{\cancel{13}_{1}}$

$= \frac{11}{13}$ Ans

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(iv) $\frac{5}{7} \div \frac{35}{40}$

Sol

$= \frac{\cancel{5}^{1}}{7} \times \frac{40}{\cancel{35}_{7}}$

$= \frac{40}{49}$ Ans

(v) $\left[\frac{-15}{28}\right] \times \frac{14}{30}$

Sol

$= \frac{\cancel{-15}^{-1}}{\cancel{28}_{2}} \times \frac{\cancel{14}^{1}}{\cancel{30}_{2}}$

$= -\frac{1}{4}$ Ans

(vi) $\frac{111}{100} \div \frac{222}{300}$

Sol

$= \frac{\cancel{111}^{1}}{\cancel{100}} \times \frac{\cancel{300}^{3}}{\cancel{222}_{2}}$

$= \frac{3}{2}$

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

$2\overline{)3}$ 1

2

1

Exercise#2.2

Q.1 Find the additive inverse and multiplicative inverse of the following rational numbers.

(i) -7 (ii) 23 (iii) -11 (iv) $\frac{1}{3}$

(v) $\frac{-2}{7}$ (vi) 6 (vii) 1 (viii) $\frac{-6}{13}$

(ix) $\frac{1}{100}$ (x) $\frac{18}{27}$ (xi) $\frac{-99}{100}$ (xii) $\frac{102}{117}$

Ans.

	Additive Inverse	Multiplicative Inverse
(i)	$+7$	$\frac{-1}{7}$
(ii)	-23	$\frac{1}{23}$
(iii)	$+11$	$\frac{-1}{11}$
(iv)	$-\frac{1}{3}$	3
(v)	$+\frac{2}{7}$	$-\frac{7}{2}$

	Additive Inverse	Multiplicative Inverse
(vi)	-6	$\frac{1}{6}$
(vii)	-1	$\frac{1}{1} = 1$
(viii)	$+\frac{6}{13}$	$-\frac{13}{6}$
(ix)	$-\frac{1}{100}$	100
(x)	$\frac{-18}{27}$	$\frac{27}{18}$
(xi)	$+\frac{99}{100}$	$-\frac{100}{99}$
(xii)	$-\frac{102}{117}$	$\frac{117}{102}$

Q:2 Simplify the following.

(i) $\frac{1}{8} - \left[-\frac{5}{8}\right]$

Sol.

$= \frac{1}{8} + \frac{5}{8}$

$\because \frac{a}{b} + \frac{c}{b} = \frac{a+c}{b}$

$= \frac{1+5}{8}$

$= \frac{6}{8} = \frac{3}{4}$ Ans

(ii) $-\frac{99}{100} + \frac{77}{100}$

Sol.

$= \frac{-99+77}{100}$

$= \frac{-22}{100}$

$= \frac{-11}{50}$ Ans

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(iii) $\frac{3}{4} + \frac{4}{3}$

Sol

$= \frac{9+16}{12}$

$= \frac{25}{12}$ (12 ⌊25, 24, 1; 2)

$= 2\frac{1}{12}$ Ans

(iv) $\frac{1}{5} - \frac{3}{20}$

Sol

$= \frac{4-3}{20}$

$= \frac{1}{20}$ Ans

(v) $1 + \left[-\frac{49}{50}\right]$

Sol

$= \frac{1}{1} - \frac{49}{50}$

$\because \frac{a}{b} + \frac{c}{d} = \frac{ad+bc}{bd}$

$= \frac{50-49}{50}$

$= \frac{1}{50}$ Ans

(vi) $1 + \frac{11}{100}$

Sol

$= \frac{100+11}{100}$

$= \frac{111}{100}$ (100 ⌊111, 100, 11; 1)

$= 1\frac{11}{100}$ Ans

(vii) $\frac{1}{11} + \left[-\frac{5}{11}\right] + \frac{10}{11}$

Sol

$= \frac{1}{11} - \frac{5}{11} + \frac{10}{11}$

$= \frac{1-5+10}{11}$

$= \frac{11-5}{11} = \frac{6}{11}$ Ans

(viii) $\frac{13}{23} - \frac{10}{23} + \frac{4}{23}$

Sol

$= \frac{13-10+4}{23}$

$= \frac{17-10}{23}$

$= \frac{7}{23}$ Ans

(xi) $-\frac{3}{4} - \frac{5}{6} - \left[\frac{-17}{8}\right]$

Sol

$= -\frac{3}{4} - \frac{5}{6} + \frac{17}{8}$

$= \frac{-18 - 20 + 51}{24}$

$= \frac{-38 + 51}{24}$

$= \frac{13}{24}$ Ans

L.C.M

2	4, 6, 8
2	2, 3, 4
2	1, 3, 2
3	1, 3, 1
	1, 1, 1

$2 \times 2 \times 2 \times 3 = 24$

(xii) $\frac{1}{11} + \frac{11}{10} + \left[\frac{-22}{5}\right]$

Sol

$= \frac{1}{11} + \frac{11}{10} - \frac{22}{5}$

$= \frac{10 + 121 - 484}{110}$

$= \frac{131 - 484}{110}$

$= \frac{-353}{110}$

$= -3\frac{23}{110}$ Ans

L.C.M

5	5, 11, 10
2	1, 11, 2
11	1, 11, 1
	1, 1, 1

$5 \times 2 \times 11 = 110$

$110 \overline{)353} \; 3$

330

23

(ix) $\left[-\frac{1}{2}\right] + \left[-\frac{1}{5}\right] + \frac{9}{10}$

Sol.

$= -\frac{1}{2} - \frac{1}{5} + \frac{9}{10}$

$= \frac{-5 - 2 + 9}{10}$

$= \frac{-7 + 9}{10}$

$= \frac{2}{10_5}$

$= \frac{1}{5}$ Ans

L.C.M

2	2, 5, 10
5	1, 5, 5
	1, 1, 1

$2 \times 5 = 10$

(x) $\frac{1}{8} + \frac{1}{9} - \frac{15}{18}$

Sol

$= \frac{9 + 8 - 60}{72}$

$= \frac{17 - 60}{72}$

$= \frac{-43}{72}$ Ans

L.C.M

2	8, 9, 18
4	4, 9, 9
9	1, 9, 9
	1, 1, 1

$2 \times 4 \times 9 = 72$