

NEW-ERA PUBLIC SCHOOLCLASS :- 7thSUBJECT :- MATHEMATICSSESSION :- 2021-2022SOLVED ASSIGNMENT OF UNIT: ICONTENTS:-1: Knowing Our Numbers.2: FractionsKNOWING OUR NUMBERSCHAPTER : 01

Absolute value of an integer $\Rightarrow$ The absolute value of an integer is the numerical value (magnitude) of an integer regardless of its sign (direction). It is denoted by symbol $||$. The absolute value of an integer is either zero or positive. (OR)

The absolute value of a number or integer is the distance of the number from zero, in a number line irrespective of the direction.

Ordering integers $\Rightarrow$

- 1:- For every positive integer to the right of zero, there is a negative integer to the left of zero placed at the same distance from zero in a number line.
- 2:- Zero is greater than every negative integer and is less than every positive integer.
- 3:- Every positive integer is greater than every negative integer.

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Recap Exercise

Q1:- Order each set of integers from smallest to greater.

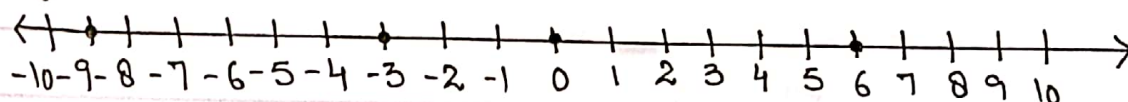
a): 1, 12, 17, 0, 21, 27

b): 0, -7, 4, 1, -4, -3

sol): 0, 1, 12, 17, 21, 27

sol): -7, -4, -3, 0, 1, 4

Q2:- Identify the integers shown by the dots on the given number line.



sol): -9, -3, 0, 6

Q3:- Find absolute value of the following:

a) 2

b): -15

sol) |2|

sol): |-15|

$\Rightarrow 2$

$\Rightarrow 15$

c) -4 - 11

d): +7 - 13

sol): |-4 - 11|

sol): |7 - 13|

$\Rightarrow |-15|$

$\Rightarrow |-6|$

$\Rightarrow 15$

$\Rightarrow 6$

e): 4 - (-4)

sol): |4 - (-4)|

$\Rightarrow |4 + 4|$

$\Rightarrow |8|$

$\Rightarrow 8$

Q4:- Which temperature is lesser?

a) 4°C or -5°C

b): 3°C or -3°C

sol): -5°C

sol): -3°C

c): -2°C or -1°C

d): 4°C or 0°C

sol): -2°C

sol): 0°C

Q5:- Add the following:

a): $12 + 23$

b) $0 + (-10)$

sol): $12 + 23 = 35$

sol): $0 - 10 \Rightarrow -10$

$$c): -13 - 13$$

$$\text{Sol}): -13 - 13$$

$$\Rightarrow -26$$

$$d): +16 - 16$$

$$\text{Sol}): 16 - 16$$

$$\Rightarrow 0.$$

Q6): Subtract the following:

$$a): 19 - 21$$

$$\text{Sol}): 19 - 21$$

$$\Rightarrow -2$$

$$c): 1 - (-1)$$

$$\text{Sol}): 1 - (-1)$$

$$\Rightarrow 1 + 1$$

$$\Rightarrow 2$$

$$b): 0 - 11$$

$$\text{Sol}): 0 - 11$$

$$\Rightarrow -11$$

$$d): 0 - 0$$

$$\text{Sol}): 0 - 0$$

$$\Rightarrow 0.$$

Exercise : 1.1

Q1): Fill in the blanks.

$$a) (-11) \times \underline{10} \times (-11) = 1210$$

$$b) (-13) + (12) \times \underline{0} = -13$$

$$c) 23 \div \underline{(-23)} + (-2) = -3$$

$$d) 0 \div (-12) - (-14) = \underline{14}$$

$$e) (-1) \times (-1) \times \underline{2} = 2$$

$$f) (-17) \times \underline{0} \times 21 = 0$$

Q2): Find the product of the following:

$$a) 23 \times 13$$

$$\text{Sol}): 23 \times 13$$

$$\Rightarrow 299$$

$$d): 11 \times (-17)$$

$$\text{Sol}): (11) \times (-17)$$

$$\Rightarrow -187$$

$$b) 0 \times (-34)$$

$$\text{Sol}): 0 \times (-34)$$

$$\Rightarrow 0$$

$$e): (-19) \times 14$$

$$\text{Sol}): (-19) \times 14$$

$$\Rightarrow -266$$

$$c): (-45) \times 0$$

$$\text{Sol}): (-45) \times 0$$

$$\Rightarrow 0.$$

$$f): (-26) \times (-29)$$

$$\text{Sol}): (-26) \times (-29)$$

$$\Rightarrow 754$$

Q3): Simplify and find the absolute values of the following:

$$a): |35 \div (-7)|$$

$$\text{Sol}): |35 \div (-7)|$$

$$\Rightarrow |-5|$$

$$\Rightarrow 5$$

$$b): |(-152) \div (-19)|$$

$$\text{Sol}): |(-152) \div (-19)|$$

$$\Rightarrow |8|$$

$$\Rightarrow 8$$

$$c): |(-144) \div 16|$$

$$\text{Sol}): |(-144) \div 16|$$

$$\Rightarrow |-9|$$

$$\Rightarrow 9$$

$$e): |12 \times (-10) \div 6|$$

$$\text{Sol}): |12 \times \frac{(-10)}{6}|$$

$$\Rightarrow |12 \times \frac{(-5)}{3}|$$

$$\Rightarrow |12 \times -\frac{5}{3}|$$

$$\Rightarrow |4 \times -5|$$

$$\Rightarrow |-20|$$

$$\Rightarrow 20$$

$$d): |(-20) - (-15) \div 3 - (-2)|$$

$$\text{Sol}): |(-20) - (-15) \div 3 - (-2)|$$

$$\Rightarrow |(-20) + 5 + 2|$$

$$\Rightarrow |-20 + 5 + 2|$$

$$\Rightarrow |-20 + 7|$$

$$\Rightarrow |-13|$$

$$\Rightarrow 13$$

$$f): |34 - 16 \div 8 - (-10)|$$

$$\text{Sol}): |34 - 16 \div 8 - (-10)|$$

$$\Rightarrow |34 - 2 + 10|$$

$$\Rightarrow |34 - 2 + 10|$$

$$\Rightarrow |32 + 10|$$

$$\Rightarrow |42|$$

$$\Rightarrow 42$$

Q4): Determine the quotient of each of the following:

$$a) 18 \div (-6)$$

$$\text{Sol}): 6 \overline{)18} 3$$

$$\frac{18}{x}$$

$$\therefore \text{Quotient} = -3$$

$$c): (-45) \div (-15)$$

$$\text{Sol}): 15 \overline{)45} 3$$

$$\frac{45}{x}$$

$$\therefore Q = 3$$

$$e): 0 \div 13$$

$$\text{Sol}): 0$$

$$b): (-33) \div 11$$

$$\text{Sol}): 11 \overline{)33} 3$$

$$\frac{33}{x}$$

$$\therefore \text{Quotient} = -3$$

$$d): 34 \div 34$$

$$\text{Sol}): 34 \overline{)34} 1$$

$$\frac{34}{x}$$

$$\therefore Q = 1$$

$$f): 123 \div (-3)$$

$$\text{Sol}): 3 \overline{)123} 41$$

$$\frac{12}{x}$$

$$3$$

$$3$$

$$x$$

$$\therefore Q = -41$$

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Q5): An integer when divided by -3 gives 96 . find the integer.

Sol): let the number be x .

Ac. to Question.

$$\frac{x}{-3} = 96$$

$$\Rightarrow \frac{x}{-3} = 96 \quad \text{— by cross multiplication}$$

$$\Rightarrow x = -3 \times 96$$

$$\Rightarrow x = -288$$

$\therefore$ the reqd. number is -288 .

Q6): An integer when multiplied by -7 gives 119 . find the integer.

Sol): let the integer be x .

Ac. to Q.

$$x \times -7 = 119$$

$$\Rightarrow -7x = 119$$

$$\Rightarrow x = \frac{119}{-7} = -17$$

$$\Rightarrow x = -17$$

$\therefore$ the reqd. number is -17 .

Q7): State True or False.

a) $(-9) + 0 = 0$

b) $(-5) - 0 = 5$

c) $(-3) - 0 = -3$

Sol): false

Sol): false

Sol): True.

d) $(-7) + 0 = 7$

e) $(-1) + 1 = 0$

f) $(-1) - 1 = (-2)$

Sol): false

Sol): True

Sol): True.

Q8): Multiply the following:

a) 13 and 19

b) 16 and 0

c) 0 and 24

Sol): $13 \times 19 = 247$

Sol): $16 \times 0 = 0$

Sol): $0 \times 24 = 0$

d) (-31) and 5

e) (-12) and (-13)

f) 15 & (-16)

Sol): -31×5

Sol): -12×-13

Sol): 15×-16

$$\Rightarrow -155$$

$$\Rightarrow 156$$

$$\Rightarrow -240.$$

Exercise: 1.2

Q1): Add $(-13) + 34$ using the commutative property.

Sol): using commutative property

$$\Rightarrow a + b = b + a$$

$$\Rightarrow (-13) + 34 = 34 + (-13)$$

$$\Rightarrow -13 + 34 \Rightarrow 34 - 13$$

$$\Rightarrow 21 \Rightarrow 21$$

Q2): Add $[23 + (-17)] + (-19)$ using the associative property

Sol): using associative property.

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

$$\Rightarrow [23 + (-17)] + c = 23 + [(-17) + (-19)]$$

$$\Rightarrow [23 - 17] + (-19) \Rightarrow 23 + [-17 - 19]$$

$$\Rightarrow 6 + (-19) \Rightarrow 23 + (-36)$$

$$\Rightarrow 6 - 19 \Rightarrow 23 - 36$$

$$\Rightarrow -13 \Rightarrow -13$$

Q3): Multiply (-14) and (-13) using the closure property

Sol): $(-14) \times (-13)$

$$\Rightarrow -14 \times -13$$

$$\Rightarrow 182$$

$\rightarrow [182 \text{ is also a integer}]$

Q4): Multiply $(-11) \times [23 + (-10)]$ using the distributive property

Sol): using distributive property.

$$a \times [b + c]$$

$$\Rightarrow (a \times b) + (a \times c)$$

$$\Rightarrow (-11) \times [23 + (-10)]$$

$$\Rightarrow (-11) \times (23) + (-11) \times (-10)$$

$$\Rightarrow -253 + (110)$$

$$\Rightarrow -253 + 110$$

$$\Rightarrow -143$$

Q5): Fill in the blanks:

a) $(-34) \div 34 = \underline{-1}$

c) $\underline{0} \div 62 = \underline{0}$

e) $\underline{1} + 35 = 36$

b) $\underline{-234} \div 234 = \underline{(-1)}$

d) $\underline{0} + 52 = 52$

f) $\underline{-1} + (-42) = \underline{(-43)}$

Q6): State True or false:

a): $0 + (-65) = 0 \rightarrow \text{false}$

d): $(-13) \times (-2) = 26 \rightarrow \text{true}$

c): $(-324) \div (-18) = 18 \rightarrow \text{true}$

b): $(-78) + (-1) + (-4) = (-83) \rightarrow \text{true}$

e): $256 \div (-16) = 16 \rightarrow \text{false}$

e): $[23 \div (-11)] \div 11 = 4 \rightarrow \text{false}$

Q7): Calculate the following using suitable arrangements.

a): $(-142) + (-58) + 200$

Sol): $[(-142) + (-58)] + 200$

$\Rightarrow [-142 - 58] + 200$

$\Rightarrow (-200) + 200$

$\Rightarrow -200 + 200 \Rightarrow 0.$

b): $134 \times 11 + 134 \times 9$

Sol): $134 \times 11 + 134 \times 9$

$\Rightarrow 134 \times [11 + 9]$

$\Rightarrow 134 \times (20)$

$\Rightarrow 2680$

c): $(-50) \times 125 \times (-6) \times 8.$

Sol): $[(-50) \times (-6)] \times [125 \times 8]$

$\Rightarrow 300 \times 1000$

$\Rightarrow 300,000$

Q8): Determine the integer which when divided by (-1) gives (-34)

Sol): Let the integer be x .

Ac. to Q.

$\Rightarrow \frac{x}{-1} = -34$

$\Rightarrow x = (-1) \times (-34)$

by CM.

$\Rightarrow x = 34.$

$\therefore$ The reqd. integer is 34.

FRACTIONS

CHAPTER : 02

Fraction $\Rightarrow$ We can define a fraction as a part of the whole or collection.

Types of fractions:

- 1) Proper fraction $\Rightarrow$ A fraction in which the numerator is less than the denominator. eg. $\frac{3}{7}$, $\frac{2}{9}$, $\frac{1}{8}$
- 2) Improper fraction $\Rightarrow$ A fraction in which the numerator is greater than the denominator. eg. $\frac{3}{2}$, $\frac{6}{4}$, $\frac{12}{10}$.
An improper fraction can be converted into a mixed fraction and vice-versa eg. $\frac{3}{2} = 1\frac{1}{2}$, $\frac{9}{5} = 1\frac{4}{5}$.
- 3) Unit fraction $\Rightarrow$ Proper fraction having 1 as the numerator are called unit fraction. eg. $\frac{1}{3}$, $\frac{1}{7}$, $\frac{1}{5}$.
- 4) Like and unlike fractions $\Rightarrow$ fractions with the same denominator are called like fractions eg. $\frac{2}{5}$, $\frac{4}{5}$, $\frac{3}{5}$ and fractions with different denominators are called unlike fractions eg. $\frac{1}{3}$, $\frac{3}{4}$, $\frac{2}{5}$.

RECAP EXERCISE

Q1): Select the unit fractions from the following.
 $\frac{7}{9}$, $\frac{5}{3}$, $\frac{1}{7}$, $\frac{4}{11}$, $\frac{1}{2}$, $\frac{16}{13}$, $\frac{12}{11}$, $\frac{1}{4}$

Sol): $\frac{1}{7}$, $\frac{1}{2}$, $\frac{1}{4}$

Q2): Fill the blanks with $<$, $>$ or $=$ signs.

a): $\frac{17}{12}$ — $\frac{6}{13}$

b): $8\frac{2}{7}$ — $7\frac{7}{9}$

Sol): $17 \times 13 = 221$
 $6 \times 12 = 72$

Sol): $\frac{58}{7}$ — $7\frac{7}{9}$

$\Rightarrow 221 > 72$

$\Rightarrow 58 \times 9 = 504$

$\Rightarrow \frac{17}{12} > \frac{6}{13}$

$\Rightarrow 77 \times 7 = 539$

$\Rightarrow 58\frac{2}{7} < 7\frac{7}{9}$

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$$c): 3\frac{2}{3} \quad \text{---} \quad 2\frac{1}{8}$$

$$\text{Sol): } \frac{11}{2} \quad \text{---} \quad \frac{17}{8}$$

$$\Rightarrow 11 \times 8 = 88$$

$$17 \times 2 = 34$$

$$\Rightarrow \frac{11}{2} > \frac{17}{8}$$

$$\Rightarrow 3\frac{2}{3} > 2\frac{1}{8}$$

$$d): 8\frac{1}{2} \quad \text{---} \quad 16\frac{1}{2}$$

$$\text{Sol): } \frac{17}{2} \quad \text{---} \quad \frac{16}{2}$$

Since denominators are same. Compare numerators we get $17 > 16$.

$$\Rightarrow \frac{17}{2} > \frac{16}{2}$$

$$\Rightarrow 8\frac{1}{2} > 16\frac{1}{2}$$

Q3): write in ascending order.

$$a) \frac{7}{40}, \frac{9}{20}, \frac{13}{10}, \frac{1}{4}$$

Sol): Lcm of 40, 20, 10 and 4 = 40.

$$\Rightarrow \frac{7}{40} \times \frac{1}{1} = \frac{7}{40}$$

$$\Rightarrow \frac{9}{20} \times \frac{2}{2} = \frac{18}{40}$$

$$\Rightarrow \frac{13}{10} \times \frac{4}{4} = \frac{52}{40}$$

$$\Rightarrow \frac{1}{4} \times \frac{10}{10} = \frac{10}{40}$$

2	40, 20, 10, 4
5	20, 10, 5, 2
2	4, 2, 1, 2
2	2, 1, 1, 1
	1, 1, 1, 1

Comparing numerators we get.

$$7 < 10 < 18 < 52$$

$$\Rightarrow \frac{7}{40} < \frac{1}{4} < \frac{9}{20} < \frac{13}{10}$$

$$b): \frac{1}{4}, \frac{5}{7}, \frac{7}{10}, \frac{1}{2}$$

Sol): Lcm of 4, 7, 10, 2 = 140

$$\Rightarrow \frac{1}{4} \times \frac{35}{35} = \frac{35}{140}$$

2	4, 7, 10, 2
2	2, 7, 5, 1
7	1, 7, 5, 1
5	1, 1, 5, 1
	1, 1, 1, 1

$$\Rightarrow \frac{5}{7} \times \frac{20}{20} = \frac{100}{140}$$

$$\Rightarrow \frac{7}{10} \times \frac{14}{14} = \frac{98}{140}$$

$$\Rightarrow \frac{1}{2} \times \frac{70}{70} = \frac{70}{140}$$

Comparing numerators we get.

$$35 < 70 < 98 < 100$$

$$\Rightarrow \frac{1}{4}, \frac{1}{2}, \frac{7}{10}, \frac{5}{7}$$

Q4): Write in descending order.

a): $\frac{2}{7}, \frac{3}{4}, \frac{5}{28}, \frac{6}{14}$

Sol): lcm of 7, 4, 28, 14 = 28

$$\Rightarrow \frac{2}{7} \times \frac{4}{4} = \frac{8}{28}$$

$$\Rightarrow \frac{3}{4} \times \frac{7}{7} = \frac{21}{28}$$

$$\Rightarrow \frac{5}{28} \times \frac{1}{1} = \frac{5}{28}$$

$$\Rightarrow \frac{6}{14} \times \frac{2}{2} = \frac{12}{28}$$

Comparing numerators we get.

$$21 > 12 > 8 > 5$$

$$\Rightarrow \frac{3}{4}, \frac{6}{14}, \frac{2}{7}, \frac{5}{28}$$

b): $\frac{3}{9}, \frac{7}{12}, \frac{5}{6}, \frac{1}{4}$

Sol): lcm of 9, 12, 6, 4 = 36

$$\Rightarrow \frac{3}{9} \times \frac{4}{4} = \frac{12}{36}$$

3	9, 12, 6, 4
3	3, 4, 2, 4
2	1, 4, 2, 4
2	1, 2, 1, 2
	1, 1, 1, 1

$$\Rightarrow \frac{7}{12} \times \frac{3}{3} = \frac{21}{36}$$

$$\Rightarrow \frac{5}{6} \times \frac{6}{6} = \frac{30}{36}$$

$$\Rightarrow \frac{1}{4} \times \frac{9}{9} = \frac{9}{36}$$

Comparing numerators we get.

$$30 > 21 > 12 > 9$$

$$\Rightarrow \frac{5}{6}, \frac{7}{12}, \frac{3}{9}, \frac{1}{4}$$

Q5): Encircle the mixed fractions.

$$4, \frac{7}{8}, \frac{15}{2}, 1\frac{2}{7}, \frac{14}{9}, 2\frac{4}{9}$$

Sol): $1\frac{2}{7}, 2\frac{4}{9}$

Q6): Convert improper fractions into mixed fractions.

a): $\frac{49}{18}$

c): $\frac{63}{5}$

Sol): $18 \overline{) 49} \begin{array}{r} 2 \\ \underline{36} \\ 13 \end{array}$

Sol): $5 \overline{) 63} \begin{array}{r} 12 \\ \underline{5} \\ 13 \\ \underline{10} \\ 3 \end{array}$

$$\Rightarrow \frac{49}{18} = 2\frac{13}{18}$$

$$\Rightarrow \frac{63}{5} = 12\frac{3}{5}$$

Q7): Convert into like fractions.

a) $\frac{1}{4}$ and $\frac{3}{8}$

e): $4\frac{1}{2}$ and $3\frac{1}{4}$

Sol): $\frac{9}{2}$ and $\frac{13}{4}$

Sol): Lcm of 4 & 8 = 8.

$$\Rightarrow \frac{1}{4} \times \frac{2}{2} = \frac{2}{8}$$

$$\Rightarrow \text{Lcm of } 2 \text{ \& } 4 = 4$$

$$\Rightarrow \frac{9}{2} \times \frac{2}{2} = \frac{18}{4}$$

$$\Rightarrow \frac{3}{8} \times \frac{1}{1} = \frac{3}{8}$$

$$\Rightarrow \frac{13}{4} \times \frac{1}{1} = \frac{13}{4}$$

$$\Rightarrow \frac{2}{8} \text{ and } \frac{3}{8} \text{ are like}$$

$$\Rightarrow \frac{18}{4} \text{ \& } \frac{13}{4} \text{ are like}$$

Q8): Find the sum of following:

a) $\frac{3}{4}$ and $\frac{5}{6}$

Sol): $\frac{(3 \times 6) + (5 \times 4)}{24}$

$$\Rightarrow \frac{18 + 20}{24}$$

$$\Rightarrow \frac{38}{24} = \frac{19}{12}$$

$$\Rightarrow \frac{19}{12}$$

or $12 \overline{)19} 1$
 $\frac{12}{7}$

$$\Rightarrow 1 \frac{7}{12} \Rightarrow \frac{19}{12}$$

Q9): Find the difference of the following:

a) $\frac{3}{1} - \frac{4}{9}$

Sol): $\frac{(3 \times 9) - (4 \times 1)}{(9 \times 1)}$

$$\Rightarrow \frac{27 - 4}{9}$$

$$\Rightarrow \frac{23}{9}$$

$\Rightarrow 9 \overline{)23} 2$
 $\frac{18}{5}$

$$\Rightarrow 2 \frac{5}{9} = \frac{23}{9}$$

c) $\frac{3}{7}$ and $\frac{5}{28}$

Sol): $\frac{(3 \times 4) + (5 \times 1)}{28}$

$$\Rightarrow \frac{12 + 5}{28}$$

$$\Rightarrow \frac{17}{28}$$

d) $\frac{13}{25}$ and $\frac{7}{5}$
 Sol): $\frac{(13 \times 1) + (7 \times 5)}{25}$

$$\Rightarrow \frac{13 + 35}{25}$$

$$\Rightarrow \frac{48}{25} \Rightarrow 1 \frac{23}{25}$$

c) $18 \frac{3}{4} - 4 \frac{1}{4}$

Sol): $\frac{75}{4} - \frac{17}{4}$

$$\Rightarrow \frac{75 - 17}{4}$$

$$\Rightarrow \frac{58}{4} = \frac{29}{2}$$

$\Rightarrow 2 \overline{)29} 14$
 $\frac{2}{9}$
 $\frac{8}{1}$

$$\Rightarrow \frac{29}{2} = 14 \frac{1}{2}$$

Q10): Which is greater - the difference between $\frac{123}{4}$ and $\frac{56}{5}$ or the sum of $\frac{33}{4}$ and $\frac{51}{2}$?

$$\text{Sol): } \frac{123}{4} - \frac{56}{5}$$

$$\Rightarrow \frac{(123 \times 5) - (56 \times 4)}{(5 \times 4)}$$

$$\Rightarrow \frac{615 - 224}{20}$$

$$\Rightarrow \frac{391}{20}$$

$$\& \quad \frac{33}{4} + \frac{51}{2}$$

$$\Rightarrow \frac{(33 \times 1) + (51 \times 2)}{4}$$

$$\Rightarrow \frac{33 + 102}{4}$$

$$\Rightarrow \frac{135}{4}$$

$$\text{Now } \frac{391}{20} \text{ and } \frac{135}{4}$$

$$\Rightarrow 391 \times 4 = 1564$$

$$135 \times 20 = 2700$$

$$\Rightarrow \frac{391}{20} < \frac{135}{4}$$

$$\Rightarrow \text{Difference of } \frac{123}{4} \& \frac{56}{5} < \text{The sum of } \frac{33}{4} \& \frac{51}{2}.$$

Exercise: 2.1

Q1). Find the products.

$$\text{a): } \frac{4}{9} \times \frac{3}{2}$$

$$\text{Sol): } \frac{\cancel{4}^2}{9_3} \times \frac{\cancel{3}^1}{\cancel{2}_1}$$

$$\Rightarrow \frac{2}{3} \times \frac{1}{1}$$

$$\Rightarrow \frac{2}{3}$$

$$\text{c): } \frac{10}{30} \times \frac{5}{4}$$

$$\text{Sol): } \frac{\cancel{10}^5}{\cancel{30}_6} \times \frac{\cancel{5}^1}{\cancel{4}_2}$$

$$\Rightarrow \frac{9}{6} \times \frac{1}{2}$$

$$\Rightarrow \frac{\cancel{9}^3}{\cancel{6}_2} \Rightarrow \frac{3}{4}$$

$$\text{d): } \frac{8}{9} \times \frac{3}{4}$$

$$\text{Sol): } \frac{\cancel{8}^2}{9_3} \times \frac{\cancel{3}^1}{\cancel{4}_1}$$

$$\Rightarrow \frac{2}{3} \times \frac{1}{1}$$

$$\Rightarrow \frac{2}{3}$$

Q2): Multiply

$$\text{a): } \frac{1}{17} \times 7\frac{2}{7}$$

$$\text{Sol): } \frac{1}{\cancel{17}_1} \times \frac{\cancel{51}^3}{7}$$

$$\Rightarrow 3/7$$

$$\text{b): } 7\frac{1}{7} \times 3\frac{1}{4}$$

$$\text{Sol): } \frac{\cancel{25}^5}{7} \times \frac{13}{\cancel{4}_2}$$

$$\Rightarrow 25/7 \times 13/2$$

$$\Rightarrow 325/14 \Rightarrow 23\frac{3}{14}$$

$$\text{c): } 4\frac{1}{8} \times \frac{1}{9}$$

$$\text{Sol): } \frac{\cancel{25}^{11}}{8} \times \frac{1}{\cancel{9}_3}$$

$$\Rightarrow \frac{11}{8} \times \frac{1}{3}$$

$$\Rightarrow 11/24$$

Q3): Find the Products.

a) $\frac{4}{7} \times \frac{2}{7} \times \frac{14}{16}$

Sol): $\frac{4}{7} \times \frac{2}{7} \times \frac{14}{16}$
 $\Rightarrow \frac{1}{7}$

c) $\frac{15}{18} \times \frac{6}{9} \times \frac{27}{21}$

Sol): $\frac{15}{18} \times \frac{6}{9} \times \frac{27}{21}$
 $\Rightarrow \frac{5}{7}$

Q4): Deleted.

Q5): Multiply and convert into mixed fractions.

a) $45 \times \frac{2}{20}$

Sol): $45 \times \frac{2}{20}$

$\Rightarrow 9/2$

$\Rightarrow 2 \overline{) 9} 4$
 $\frac{8}{1}$

$\Rightarrow 4 \frac{1}{2} = 9/2$

c) $33 \times \frac{7}{70}$

Sol): $33 \times \frac{7}{70}$

$\Rightarrow \frac{33}{10}$

$10 \overline{) 33} 3$
 $\frac{30}{3}$

$\Rightarrow 3 \frac{3}{10} = \frac{33}{10}$

Q6): Find the reciprocals of the following:

a) $2 \frac{3}{4}$

Sol): $\frac{11}{4} \Rightarrow \frac{4}{11}$

c) $\frac{17}{1}$

Sol): $\frac{1}{17}$

d) $\frac{6}{11}$

Sol): $\frac{11}{6}$

b) $\frac{15}{7}$

Sol): $\frac{7}{15}$

Q7): Simplify:

a) $\left(\frac{5}{9} - \frac{12}{45} \right) \times \frac{5}{3}$

Sol): $\left[\frac{(5 \times 5) - (12 \times 1)}{45} \right] \times \frac{5}{3}$

$\Rightarrow \left(\frac{25 - 12}{45} \right) \times \frac{5}{3}$

$\Rightarrow \frac{13}{45} \times \frac{5}{3} = \frac{13}{27}$

c) $\left(\frac{2}{1} - \frac{1}{5} \right) \times \frac{2}{3}$

Sol): $\left[\frac{(2 \times 5) - (1 \times 1)}{(1 \times 5)} \right] \times \frac{2}{3}$

$\Rightarrow \left(\frac{10 - 1}{5} \right) \times \frac{2}{3}$

$\Rightarrow \frac{9}{5} \times \frac{2}{3} \Rightarrow \frac{6}{5} \Rightarrow 1 \frac{1}{5}$

Q8): The length and breadth of a rectangle are $4\frac{1}{5}$ m and $3\frac{2}{3}$ m (15)
 resp. find the area of the rectangle.

Sol): length of rectangle = $4\frac{1}{5}$ m = $\frac{21}{5}$ m

Breadth of rectangle = $3\frac{2}{3}$ m = $\frac{11}{3}$ m.

$\therefore$ Area of rectangle = $l \times b$
 $= \frac{21}{5} \text{ m} \times \frac{11}{3}$

$= \frac{7}{5} \text{ m} \times \frac{11}{1}$

$= \frac{77}{5} \text{ m}^2$

$= 15\frac{2}{5} \text{ m}^2$

$$\begin{array}{r} 5 \overline{) 77} 15 \\ \underline{5} \\ 27 \\ \underline{25} \\ 2 \end{array}$$

Q9): Sapna travelled 48 kilometers to see her parents. She travelled the first 18 km by car and the remaining distance by train. find the fraction of the journey Sapna travelled by car.

Sol): Total distance travelled by Sapna = 48 km.

Distance travelled by car = 18 km

$\therefore$ Distance travelled by train = $48 - 18 \text{ km} = 30 \text{ km}$.

$\therefore$ fraction of distance travelled by car = $\frac{18}{48} = \frac{3}{8}$

Q10): Ron practises cricket for $1\frac{1}{2}$ hours every Monday, Tuesday and Wednesday. He practises cricket for $2\frac{1}{3}$ h every Thursday, Friday and Saturday. He does cricket practice on Sunday for $3\frac{1}{2}$ hours. How many hours does he practises cricket in a week.

Sol): Practise hours for Monday, Tuesday, Wed. = $1\frac{1}{2}$
 " " for Thursday, Friday, Sat. = $2\frac{1}{3}$
 practise hours for Sunday = $3\frac{1}{2}$.

$$\begin{aligned}
 \text{Now total practise hours in a week} &= \\
 &= 3\left(1\frac{1}{2}\right) + 3\left(2\frac{1}{3}\right) + 3\frac{1}{2} \\
 &= 3\left(\frac{3}{2}\right) + \cancel{3}\left(\frac{7}{\cancel{3}}\right) + \frac{7}{2} \\
 &= \frac{9}{2} + \frac{7}{1} + \frac{7}{2} \\
 &= \frac{(9 \times 1) + (7 \times 2) + (7 \times 1)}{2} \\
 &= \frac{9 + 14 + 7}{2} \\
 &= \frac{30}{2} = 15 \text{ hours.}
 \end{aligned}$$

Q11): Rorit takes $\frac{3}{4}$ h to clean a hotel room. If he works non-stop for 6h, how many hotel rooms will he be able to clean.

Sol): Total hours = 6h

Time taken to clean one room = $\frac{3}{4}$ h.

$$\therefore \text{No. of rooms cleaned} = 6 \div \frac{3}{4}$$

$$= \frac{6}{\cancel{3}h} \times \frac{4}{\cancel{3}h}$$

$$= 2 \times 4$$

$$= 8 \text{ rooms.}$$

Q12): Sunitha walks $\frac{1}{2}$ km each day. Ramesh walks $\frac{1}{3}$ km each day. How many more km will Sunitha walk than Ramesh in 18 days.

Sol): Distance travelled by Sunitha in One day = $\frac{1}{2}$ km
 $\therefore$ Distance travelled by Sunitha in 18 days = $\frac{1}{2} \times 18$
 $= 9 \text{ km}$

Now distance travelled by Ramesh in 1 day = $\frac{1}{3}$ km
 $\therefore$ distance travelled in 18 days = $\frac{1}{3} \times 18$ km

$$= \frac{1}{\cancel{3}_1} \times 18^6 \text{ km}$$

$$= 6 \text{ km.}$$

$\therefore$ Extra km travelled by Sunitha = $9 \text{ km} - 6 \text{ km}$
 $= 3 \text{ km.}$

Exercise : 2.2

Q1): Solve the following:

a) $3 \div \frac{1}{3}$

b) $3 \div \frac{1}{4}$

c) $2 \div \frac{1}{3}$

Sol): $3 \div \frac{1}{3}$

Sol): $3 \div \frac{1}{4}$

Sol): $2 \div \frac{1}{3}$

$$\Rightarrow 3 \times \frac{3}{1}$$

$$\Rightarrow 3 \times \frac{4}{1}$$

$$\Rightarrow 2 \times \frac{3}{1}$$

$$\Rightarrow \frac{9}{1}$$

$$\Rightarrow \frac{12}{1}$$

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

$$\Rightarrow 9$$

$$\Rightarrow 12$$

$$\Rightarrow 6.$$

Q2): Divide the following:

a) $\frac{2}{11} \div 3$

c) $4\frac{1}{5} \div \frac{14}{25}$

e) $6\frac{5}{7} \div 3\frac{5}{14}$

Sol): $\frac{2}{11} \div \frac{3}{1}$

Sol): $\frac{21}{5} \div \frac{14}{25}$

Sol): $\frac{47}{7} \div \frac{47}{14}$

$$\Rightarrow \frac{2}{11} \times \frac{1}{3}$$

$$\Rightarrow \frac{\overset{3}{\cancel{21}}}{\cancel{5}_1} \times \frac{\overset{25}{\cancel{25}}^5}{\cancel{14}_2}$$

$$\Rightarrow \frac{\overset{1}{\cancel{47}}}{\cancel{7}_1} \times \frac{\overset{14}{\cancel{47}}^2}{\cancel{47}_1}$$

$$\Rightarrow \frac{2}{33}$$

$$\Rightarrow \frac{3}{1} \times \frac{5}{2}$$

$$\Rightarrow \frac{2}{1}$$

$$\Rightarrow 15/2$$

$$\Rightarrow 2.$$

$$= 7\frac{1}{2}.$$

(18)

$$f) 3\frac{4}{5} \div 2\frac{3}{8}$$

$$\text{Sol): } \frac{19}{5} \div \frac{19}{8}$$

$$\Rightarrow \frac{\cancel{19}^1}{5} \times \frac{8}{\cancel{19}_1}$$

$$\Rightarrow \frac{8}{5}$$

$$= 1\frac{3}{5}$$

$$g) 3\frac{5}{7} \div \frac{4}{7}$$

$$\text{Sol): } \frac{26}{7} \div \frac{4}{7}$$

$$\Rightarrow \frac{\cancel{26}^{13}}{\cancel{7}_1} \times \frac{\cancel{7}_1}{4_2}$$

$$\Rightarrow \frac{13}{2}$$

$$\Rightarrow 6\frac{1}{2}$$

$$h) 3\frac{9}{11} \div 4\frac{21}{27}$$

$$\text{Sol): } \frac{42}{11} \div \frac{129}{27}$$

$$\Rightarrow \frac{\cancel{42}^{14}}{\cancel{11}_1} \times \frac{27}{\cancel{129}_{43}}$$

$$\Rightarrow \frac{14}{11} \times \frac{27}{43}$$

$$\Rightarrow \frac{378}{473}$$

Q3: Simplify:

$$a) \left(\frac{1}{2} + \frac{1}{3} \right) \div 5$$

$$\text{Sol): } \left[\frac{(1 \times 3) + (1 \times 2)}{(3 \times 2)} \right] \div 5$$

$$\Rightarrow \left(\frac{3+2}{6} \right) \div 5$$

$$\Rightarrow \left(\frac{5}{6} \right) \div \frac{5}{1}$$

$$\Rightarrow \frac{\cancel{5}^1}{6} \times \frac{1}{\cancel{5}_1}$$

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

$$c) \left(\frac{3}{4} + \frac{1}{8} \right) \times \frac{1}{3}$$

$$\text{Sol): } \left(\frac{3}{4} + \frac{1}{8} \right) \times \frac{1}{3}$$

$$\Rightarrow \left[\frac{(3 \times 2) + (1 \times 1)}{8} \right] \times \frac{1}{3}$$

$$\Rightarrow \left(\frac{6+1}{8} \right) \times \frac{1}{3}$$

$$\Rightarrow \frac{7}{8} \times \frac{1}{3} = \frac{7}{24}$$

$$b) 7 \div \left(1\frac{5}{7} + \frac{2}{7} \right)$$

$$\text{Sol): } 7 \div \left(\frac{12}{7} + \frac{2}{7} \right)$$

$$\Rightarrow 7 \div \left(\frac{12+2}{7} \right)$$

$$\Rightarrow 7 \div \frac{14}{7}$$

$$\Rightarrow \cancel{7}^1 \times \frac{7}{\cancel{14}_2}$$

$$\Rightarrow \frac{7}{2} \Rightarrow 3\frac{1}{2}$$

$$d) \left(\frac{3}{5} + \frac{2}{5} + \frac{1}{8} \right) \times 8$$

$$\text{Sol): } \left[\frac{(3 \times 8) + (2 \times 8) + (1 \times 5)}{40} \right] \times 8$$

$$\Rightarrow \left[\frac{24+16+5}{40} \right] \times 8$$

$$\Rightarrow \frac{45}{40} \times \cancel{8}_1$$

$$\Rightarrow 9$$

Q4): By what number should we divide $4\frac{3}{4}$ to get $1\frac{2}{3}$?

Sol): Let the number be P/Q .

Ac. to Q.

$$4\frac{3}{4} \div \frac{P}{Q} = 1\frac{2}{3}$$

$$\Rightarrow \frac{19}{4} \div \frac{P}{Q} = \frac{5}{3}$$

$$\Rightarrow \frac{19}{4} \times \frac{Q}{P} = \frac{5}{3}$$

$$\Rightarrow \frac{Q}{P} = \frac{5}{3} \div \frac{19}{4}$$

$$\Rightarrow \frac{Q}{P} = \frac{5}{3} \times \frac{4}{19}$$

$$\Rightarrow \frac{Q}{P} = \frac{20}{57}$$

$\therefore$ The reqd. no. is $P/Q = \frac{57}{20}$

$$\Rightarrow \frac{57}{20} = 2\frac{17}{20}$$

Q6): Sumaira had three pizzas. She shared the pizza with her friends. Each of them ate $\frac{3}{7}$ of a pizza. How many friends ate the pizza.?

Sol): Total number of pizza = 3
Share of each friend = $\frac{3}{7}$

$$\therefore \text{No. of friends} = 3 \div \frac{3}{7}$$

$$= \frac{1}{3} \times \frac{7}{3}$$

$$= 7. \text{ friends}$$

Q5): By what number should we multiply $9\frac{2}{3}$ to get 1.

Sol): Let the number be P/Q .

Ac. to Q.

$$9\frac{2}{3} \times \frac{P}{Q} = 1$$

$$\Rightarrow \frac{29}{3} \times \frac{P}{Q} = 1$$

$$\Rightarrow \frac{P}{Q} = 1 \div \frac{29}{3}$$

$$\Rightarrow \frac{P}{Q} = 1 \times \frac{3}{29}$$

$$\Rightarrow \frac{P}{Q} = \frac{3}{29}$$

$\therefore$ The reqd. number is $\frac{3}{29}$

Q7): Ruby walks $3\frac{3}{4}$ km in $2\frac{1}{2}$ hours. How much distance does she cover in 1 hour.?

Sol): Distance travelled in $2\frac{1}{2}$ h = $3\frac{3}{4}$ km

$$\therefore \text{Distance travelled in 1 hour} = 3\frac{3}{4} \div 2\frac{1}{2}$$

$$= \frac{15}{4} \div \frac{5}{2}$$

$$= \frac{3}{4} \times \frac{2}{5} = \frac{3}{2} \Rightarrow 1\frac{1}{2} \text{ km}$$

Q8): Swati reads $\frac{1}{12}$ part of a book in a day. If there are 360 pages in the book, how many pages does Swati read in a day.

Sol): Total no. of pages = 360.
Swati reads = $\frac{1}{12}$ of book

$$= \frac{1}{12} \text{ of } 360$$

$$= \frac{1}{12} \times 360 = 30$$

$$= 30 \text{ pages}$$

$\therefore$ Swati reads 30 pages per day.

Q10): The area of rectangle plot of land is $36\frac{1}{10}$ sq.m. If the length of the plot is $7\frac{3}{5}$ m. find the breadth of the field?

Sol): length = $7\frac{3}{5}$ m.

let be Breadth = P/q .

Now Area of Rectangle = $36\frac{1}{10} m^2$

$$\Rightarrow l \times b = 36\frac{1}{10} m^2$$

$$\Rightarrow 7\frac{3}{5} \times P/q = 36\frac{1}{10} m^2$$

$$\Rightarrow \frac{38}{5} \times \frac{P}{q} = 36\frac{1}{10} m^2$$

Q9): A roll of cloth measures 70 m. If $2\frac{1}{2}$ m of cloth is needed to stitch one shirt, how many shirts can be stitched from this roll of cloth?

Sol): Total measure of cloth = 70 m
cloth reqd. for 1 shirt = $2\frac{1}{2}$ m

$\therefore$ No. of shirts made =

$$= 70 \div 2\frac{1}{2}$$

$$= 70 \div \frac{5}{2}$$

$$= 14 \times \frac{2}{1}$$

$$= 14 \times 2 = 28 \text{ shirts}$$

Q11): The weight of 12 books is $15\frac{2}{3}$ kg. find the weight of 1 book.

Sol): Weight of 12 books = $15\frac{2}{3}$ kg

$\therefore$ Weight of 1 book = $15\frac{2}{3} \div 12$

$$= \frac{47}{3} \div \frac{12}{1}$$

$$= \frac{47}{3} \times \frac{1}{12}$$

$$= \frac{47}{36}$$

$$= 1\frac{11}{36} \text{ kg.}$$

$$\Rightarrow \frac{P}{9} = \frac{361}{10} \div \frac{38}{5}$$

$$\Rightarrow \frac{P}{9} = \frac{19}{2} \times \frac{5}{38}$$

$$\Rightarrow \frac{P}{9} = \frac{19}{2} \times \frac{1}{2}$$

$$\Rightarrow \frac{P}{9} = \frac{19}{4}$$

$$\therefore \text{Breadth of rectangle} = \frac{19}{4} = 4 \frac{3}{4} \text{ m.}$$

$$\therefore \text{weight of 1 book} = 1 \frac{11}{36} \text{ kg}$$

Q12): If the cost of 1 kg of mangoes is ₹ $48 \frac{2}{3}$, then how much quantity of mangoes can be purchased in ₹ 438?

Sol): Total amount = ₹ 438.

Cost of 1 kg mangoes = ₹ $48 \frac{2}{3}$

$$\therefore \text{No. of kgs} = 438 \div 48 \frac{2}{3}$$

$$= 438 \div \frac{146}{3}$$

$$= \frac{438 \times 3}{146}$$

$$= 3 \times 3$$

$$= 9 \text{ kgs.}$$

Note $\Rightarrow$ Practise these two chapters thoroughly during winter months.