

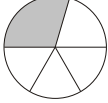
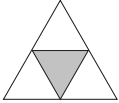
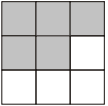
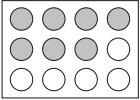



5. Fractions

Exercise 5.1

1. (a) $\frac{1}{4}$ (b) $\frac{3}{8}$ (c) $\frac{1}{2}$ (d) $\frac{3}{4}$
2. (a)  (b)  (c)  (d) 
- (e)  (f) 
3. (a) $\frac{2}{3}$ two third (b) $\frac{1}{4}$ one fourths (c) $\frac{3}{7}$ three sevenths
 (d) $\frac{12}{9}$ twelve nineteenth (e) $\frac{5}{6}$ five sixths (f) $\frac{4}{15}$ four fifteenth
4.

	Fraction	Numerator	Denominator
(a)	$\frac{2}{5}$	2	5
(b)	$\frac{8}{15}$	8	15
(c)	$\frac{6}{17}$	6	17
(d)	$\frac{4}{9}$	4	9
(e)	$\frac{12}{25}$	12	25
(f)	$\frac{19}{43}$	19	43
5. Chocolates given to Sarika $\frac{1}{2}$ 10 5.
6. Lean give $\frac{7}{28}$ $\frac{1}{4}$ stamps to Meena.
7. 6 hours of a day $\frac{6}{24}$ $\frac{1}{4}$.
8. 15 minutes of a hour $\frac{15}{60}$ $\frac{1}{4}$.
9. 1 month of a year $\frac{1}{12}$.
10. 3 days of a week $\frac{3}{7}$.
11. Set of vowels $\frac{5}{26}$.
12. Fraction of prime numbers between 1 and 100 is $\frac{25}{100}$ or $\frac{1}{4}$.

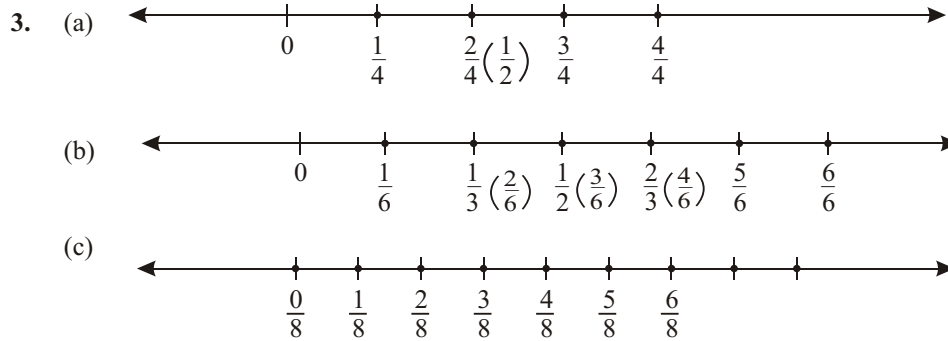


13. Fresh mangoes 60 12 48
 (a) fraction of fresh mangoes $\frac{48}{60} = \frac{4}{5}$
 (b) fraction of rotten mangoes $\frac{12}{60} = \frac{1}{5}$
14. 3 of $\frac{1}{3}$ make a whole.
15. 6 of $\frac{1}{6}$ make a whole.
16. green balls = 3
 red balls = 10
 blue balls 20 (3 10) 7
 (a) fraction of red balls $\frac{10}{20} = \frac{1}{2}$
 fraction of blue balls $\frac{7}{20}$
 fraction of green balls $\frac{3}{20}$
17. 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45 fraction of odd numbers
 $\frac{8}{16} = \frac{1}{2}$
18. Fraction of first team $\frac{3}{6} = \frac{1}{2}$
19. Figure is wrong.
 It should be equally parts. 
20. Surabhi get $\frac{1}{2}$ of 36 = 18 toffees
 Muskan get 36 - 18 = 18 toffees

Exercise 5.2

1. (a) $\frac{18}{5} = 3\frac{3}{5}$ $5 \overline{)18} \left(3 \right. \frac{15}{3}$ (b) $\frac{46}{7} = 6\frac{4}{7}$ $7 \overline{)46} \left(6 \right. \frac{42}{4}$ (c) $\frac{25}{3} = 3\frac{1}{3}$ $3 \overline{)25} \left(8 \right. \frac{24}{1}$
- (d) $\frac{19}{8} = 2\frac{3}{8}$ $8 \overline{)19} \left(2 \right. \frac{16}{3}$ (e) $\frac{16}{9} = 1\frac{7}{9}$ $9 \overline{)16} \left(1 \right. \frac{9}{7}$
2. (a) $8\frac{2}{5} = \frac{8 \times 5 + 2}{5} = \frac{40 + 2}{5} = \frac{42}{5}$ (b) $6\frac{1}{2} = \frac{6 \times 2 + 1}{2} = \frac{12 + 1}{2} = \frac{13}{2}$
- (c) $7\frac{3}{20} = \frac{7 \times 20 + 3}{20} = \frac{140 + 3}{20} = \frac{143}{20}$ (d) $11\frac{3}{8} = \frac{11 \times 8 + 3}{8} = \frac{88 + 3}{8} = \frac{91}{8}$
- (e) $4\frac{6}{17} = \frac{4 \times 17 + 6}{17} = \frac{68 + 6}{17} = \frac{74}{17}$





Exercise 5.3

1. (a) $\frac{1}{2}$ (b) $\frac{2}{4}$ or $\frac{1}{2}$ (c) $\frac{3}{6}$ or $\frac{1}{2}$

Yes all these fractions are equivalent.

2. (a) $\frac{3}{4}$ and $\frac{21}{28}$ $3 \times 28 = 84$ $21 \times 4 = 84$ Yes $\frac{3}{4}$ and $\frac{21}{28}$ are equivalent
- (b) $\frac{8}{9}$ and $\frac{8}{10}$ $8 \times 10 = 80$ $8 \times 9 = 72$ $\frac{8}{9}$ and $\frac{8}{10}$ are not equivalent
- (c) $3\frac{1}{3}$ and $\frac{32}{10}$ $\frac{16}{5}$ $\frac{32}{10}$ $16 \times 10 = 160$ $32 \times 5 = 160$ Yes $3\frac{1}{3}$ and $\frac{32}{10}$ are equivalent
3. (a) $\frac{6}{7}, \frac{2}{2}, \frac{12}{14}, \frac{6}{7}, \frac{3}{3}, \frac{18}{21}, \frac{6}{7}, \frac{4}{4}, \frac{24}{28}, \frac{6}{7}, \frac{5}{5}, \frac{30}{35}, \frac{6}{7}, \frac{6}{6}, \frac{36}{42}$
 $\frac{12}{14}, \frac{18}{21}, \frac{24}{28}, \frac{30}{35}, \frac{36}{42}$ are equivalent fraction of $\frac{6}{7}$
- (b) $\frac{9}{13}, \frac{2}{2}, \frac{18}{26}, \frac{9}{13}, \frac{3}{3}, \frac{27}{39}, \frac{9}{13}, \frac{4}{4}, \frac{36}{52}, \frac{9}{13}, \frac{5}{5}, \frac{45}{65}, \frac{9}{13}, \frac{6}{6}, \frac{54}{78}$
 $\frac{8}{26}, \frac{27}{39}, \frac{36}{52}, \frac{45}{65}, \frac{54}{78}$ are equivalent fraction of $\frac{9}{13}$
- (c) $\frac{3}{5}, \frac{2}{2}, \frac{6}{10}, \frac{3}{5}, \frac{2}{3}, \frac{9}{15}, \frac{3}{5}, \frac{4}{4}, \frac{12}{20}, \frac{3}{5}, \frac{5}{5}, \frac{15}{25}, \frac{3}{5}, \frac{6}{6}, \frac{18}{30}$
 $\frac{6}{10}, \frac{9}{15}, \frac{2}{20}, \frac{15}{25}, \frac{18}{30}$ are equivalent fraction of $\frac{3}{5}$
4. (a) $\frac{4}{7}, \frac{25}{25}, \frac{100}{175}$ (b) $\frac{4}{7}, \frac{45}{45}, \frac{180}{315}$
- (c) $\frac{4}{7}, \frac{12}{12}, \frac{48}{84}$ (d) $\frac{4}{7}, \frac{25}{25}, \frac{100}{175}$
5. (a) $\frac{54}{72}, \frac{54}{72}, \frac{9}{9}, \frac{6}{8}$ (b) $\frac{54}{72}, \frac{54}{72}, \frac{18}{18}, \frac{3}{4}$
6. (a) $\frac{4}{5}, \frac{28}{35}$ $4 \times 35 = 140$ $28 \times 5 = 140$ Yes $\frac{4}{5}$ and $\frac{28}{35}$ are equivalent
- (b) $\frac{8}{9}$ and $\frac{40}{45}$ $8 \times 45 = 360$ $40 \times 9 = 360$ Yes $\frac{8}{9}$ and $\frac{40}{45}$ are equivalent



(c) $\frac{4}{7}$ and $\frac{24}{36}$ are not equivalent

(d) $\frac{7}{13}$ and $\frac{5}{11}$ are not equivalent

7. (a) $\frac{36}{144}$

HCF of 36, and 44
HCF of 36 and 44 is 36

$$\frac{36}{144} = \frac{36 \div 36}{144 \div 36} = \frac{1}{4}$$

HCF of 180 and 120 = 60

$$\begin{array}{r} 36 \overline{) 144} \quad 4 \\ \underline{144} \\ 0 \end{array}$$

(b) $\frac{65}{117}$

$$\begin{array}{r} 65 \overline{) 117} \quad 1 \\ \underline{65} \\ 52 \\ 65 \overline{) 52} \quad 1 \\ \underline{52} \\ 0 \end{array}$$

HCF of 65 and 117 = 13

$$\frac{65}{117} = \frac{65 \div 13}{117 \div 13} = \frac{5}{9}$$

(c) $\frac{180}{120}$

$$\begin{array}{r} 120 \overline{) 180} \quad 1 \\ \underline{120} \\ 60 \\ 60 \overline{) 60} \quad 1 \\ \underline{60} \\ 0 \end{array}$$

HCF of 180 and 120 = 60

$$\frac{180}{120} = \frac{180 \div 60}{120 \div 60} = \frac{3}{2}$$

(d) $\frac{440}{990}$

HCF of 440, 990 = 110

$$\frac{440}{990} = \frac{440 \div 110}{990 \div 110} = \frac{4}{9}$$

$$\begin{array}{r} 440 \overline{) 990} \quad 2 \\ \underline{880} \\ 110 \\ 440 \overline{) 110} \quad 1 \\ \underline{440} \\ 0 \end{array}$$



(e) $\frac{19}{57}$

HCF of 19, 57 = 19

$$\frac{19}{57} = \frac{19 \div 19}{57 \div 19} = \frac{1}{3}$$

$$\begin{array}{r} 19 \overline{) 57} \quad (3 \\ \underline{57} \\ 0 \end{array}$$

(f) $\frac{69}{207}$

HCF of 69 and 207 = 69

$$\frac{69}{207} = \frac{69 \div 69}{207 \div 69} = \frac{1}{3}$$

$$\begin{array}{r} 69 \overline{) 207} \quad (3 \\ \underline{207} \\ 0 \end{array}$$

8. Stuti had toffees after a week = 20

fraction $\frac{20}{40} = \frac{1}{2}$

Arunima had toffees after a week = 30

fraction $\frac{30}{60} = \frac{1}{2}$

Alisha had toffees after a week = 40

fraction $\frac{40}{80} = \frac{1}{2}$

Yes each consume equal fractions of toffees.

9. (a) HCF of 27 and 36

$$\begin{array}{r} 27 \overline{) 36} \quad (1 \\ \underline{27} \\ 9 \overline{) 27} \quad (3 \\ \underline{-27} \\ 0 \end{array}$$

\therefore HCF of 27 and 36 is 9 it is not equal to 1

$\frac{27}{36}$ is not in lowest form

(b) HCF of 4 and 9

$$\begin{array}{r} 4 \overline{) 9} \quad (2 \\ \underline{8} \\ 1 \overline{) 4} \quad (4 \\ \underline{-4} \\ 0 \end{array}$$

\therefore HCF of 4 and 9 = 1

$\frac{4}{9}$ is in simplest form

(c)

$$\begin{array}{r} 8 \overline{) 26} \quad (3 \\ \underline{24} \\ 2 \overline{) 8} \quad (4 \\ \underline{-8} \\ 0 \end{array}$$

\therefore HCF of 8 and 26 is not equal to 1

$\frac{8}{26}$ is not in its simplest form

(d)

$$\begin{array}{r} 22 \overline{) 24} \quad (1 \\ \underline{22} \\ 2 \overline{) 22} \quad (1 \\ \underline{-22} \\ 0 \end{array}$$

\therefore HCF of 22 and 24 is not equal to 1

$\frac{22}{24}$ is not in its simplest form



$$(e) \quad \begin{array}{r} 1 \overline{) 2} \quad 2 \\ \underline{2} \\ 0 \end{array}$$

\therefore HCF is 1 and 2 is 1

$\frac{1}{2}$ is in its simplest form

$$(g) \quad \begin{array}{r} 1 \overline{) 4} \quad 4 \\ \underline{4} \\ 0 \end{array}$$

\therefore HCF of 1 and 4 is 1

$\frac{1}{4}$ is in its simplest form

$$(i) \quad \begin{array}{r} 7 \overline{) 11} \quad 1 \\ \underline{7} \\ 4 \overline{) 7} \quad 1 \\ \underline{-4} \\ 3 \overline{) 4} \quad 1 \\ \underline{-3} \\ 1 \overline{) 3} \quad 3 \\ \underline{3} \\ \times \end{array}$$

HCF of 7 and 11 is 1

$\frac{7}{11}$ is in its simplest form

$$(k) \quad \begin{array}{r} 2 \overline{) 9} \quad 1 \\ \underline{8} \\ 1 \overline{) 2} \quad 2 \\ \underline{-2} \\ \times \end{array}$$

\therefore HCF of 2 and 9 is 1

$\frac{2}{9}$ is in its simplest form

10. (a) $\frac{2}{5} \quad \frac{6}{15}$

(b) $\frac{15}{18} \quad \frac{5}{6}$

(c) $\frac{1}{8} \quad \frac{4}{32}$

(d) $\frac{4}{7} \quad \frac{12}{21}$

(e) $\frac{5}{2} \quad \frac{60}{144}$

(f) $\frac{3}{10} \quad \frac{300}{1000}$

11. (a) $\frac{4}{5} \quad \frac{16}{16} \quad \frac{64}{80} \quad \text{I am } \frac{80}{100}$

(b) $\frac{12}{18} \quad \frac{3}{3} \quad \frac{4}{6} \quad \text{I am } \frac{4}{6}$

$$(f) \quad \begin{array}{r} 3 \overline{) 12} \quad 4 \\ \underline{12} \\ \times \end{array}$$

\therefore HCF of 3 and 12 is not equal to 1

$\frac{3}{12}$ is not in its simplest form

$$(h) \quad \begin{array}{r} 36 \overline{) 42} \quad 1 \\ \underline{36} \\ 6 \overline{) 36} \quad 6 \\ \underline{-36} \\ 0 \end{array}$$

\therefore HCF of 36 and 42 is not equal to 1

$\frac{36}{42}$ is not in its simplest form

$$(j) \quad \begin{array}{r} 36 \overline{) 42} \quad 1 \\ \underline{36} \\ 6 \overline{) 36} \quad 6 \\ \underline{-36} \\ \times \end{array}$$

\therefore HCF of 36 and 42 is not equal to 1

\therefore HCF of 36 and 42 is not equal to 1

$$(l) \quad \begin{array}{r} 8 \overline{) 16} \quad 2 \\ \underline{16} \\ \times \end{array}$$

\therefore HCF of 8, 16 is not equal to 1

$\frac{8}{16}$ is not in its simplest form

Exercise 5.4

1. (a) $\frac{4}{5} > \frac{2}{5}$ (b) $\frac{5}{5} < \frac{7}{5}$ (c) $\frac{1}{5} < \frac{5}{5}$ (d) $\frac{3}{5} > \frac{0}{5}$
2. (a) $\frac{4}{7} < \frac{6}{7}$ (b) $\frac{1}{9} \frac{1}{4} \frac{1}{9} \frac{4}{4} \frac{1}{9} \frac{9}{9} \frac{4}{36} < \frac{9}{36}$ (c) $\frac{4}{5} > \frac{3}{5}$
- (d) $\frac{8}{25} < \frac{11}{25}$ (e) $\frac{1}{6} \frac{1}{7} \frac{1}{6} \frac{7}{7} \frac{1}{6} \frac{6}{6} \frac{7}{42} > \frac{6}{42}$
- (f) $\frac{4}{19} < \frac{8}{19}$ (g) $\frac{16}{11} > \frac{0}{11}$ (h) $\frac{18}{18} > \frac{17}{18}$
3. (a) $\frac{2}{7} > \frac{1}{7}$ (b) $\frac{0}{9} < \frac{3}{9}$ (c) $\frac{4}{7} < \frac{5}{7}$ (d) $\frac{3}{9} > \frac{1}{9}$
- (e) $\frac{5}{8} > \frac{6}{8}$ (f) $\frac{7}{5} > \frac{6}{5}$ (g) $\frac{2}{9} < \frac{7}{9}$ (h) $\frac{2}{4} < \frac{5}{4}$
- (i) $\frac{5}{11} > \frac{2}{11}$ (j) $\frac{2}{12} < \frac{5}{12}$
4. (a) $\frac{3}{4}$ and $\frac{7}{8}$
 $\frac{3}{4} < \frac{7}{8}$
- (b) $\frac{6}{10}$ and $\frac{12}{15}$
 $\frac{6}{10} < \frac{12}{15}$
- (c) $\frac{1}{3}$ and $\frac{1}{4}$
 $\frac{1}{3} > \frac{1}{4}$
- (d) $\frac{5}{7}$ and $\frac{4}{9}$
 $\frac{5}{7} > \frac{4}{9}$
- (e) $\frac{1}{4}$ and $\frac{3}{8}$
 $\frac{1}{4} < \frac{3}{8}$
- (f) $\frac{5}{7}$ and $\frac{15}{21}$
 $\frac{5}{7} = \frac{15}{21}$
- (g) $\frac{7}{10}$ and $\frac{4}{5}$
 $\frac{7}{10} < \frac{4}{5}$
- (h) $\frac{5}{17}$ and $\frac{6}{16}$
 $\frac{5}{17} < \frac{6}{16}$
- (i) $\frac{9}{16}$ and $\frac{5}{9}$
 $\frac{9}{16} > \frac{5}{9}$
- (j) $\frac{1}{18}$ and $\frac{8}{36}$
 $\frac{1}{18} < \frac{8}{36}$

5. (a) $\frac{9}{45} \frac{9}{9} \frac{1}{5}$ (b) $\frac{12}{16} \frac{4}{4} \frac{3}{4}$ (c) $\frac{49}{56} \frac{7}{7} \frac{7}{8}$
 (d) $\frac{84}{96} \frac{12}{12} \frac{7}{8}$ (e) $\frac{75}{100} \frac{25}{25} \frac{3}{4}$ (f) $\frac{16}{80} \frac{16}{16} \frac{1}{5}$
 (g) $\frac{9}{18} \frac{9}{9} \frac{1}{2}$ (h) $\frac{102}{136} \frac{34}{34}$ (i) $\frac{30}{150} \frac{30}{30} \frac{1}{5}$
 (j) $\frac{105}{120} \frac{15}{15} \frac{7}{8}$ (k) $\frac{202}{404} \frac{202}{201} \frac{1}{2}$ (l) $\frac{25}{125} \frac{25}{25} \frac{1}{5}$
 (m) $\frac{45}{60} \frac{15}{15} \frac{3}{4}$ (n) $\frac{500}{1000} \frac{500}{500} \frac{1}{2}$ (o) $\frac{182}{208} \frac{26}{26} \frac{7}{8}$
 (p) $\frac{36}{48} \frac{12}{12} \frac{3}{4}$

$$\frac{1}{5} \frac{9}{45}, \frac{16}{80}, \frac{30}{150}, \frac{25}{125}$$

$$\frac{3}{4} \frac{12}{16}, \frac{75}{100}, \frac{102}{136}, \frac{45}{60}, \frac{36}{48}$$

$$\frac{7}{8} \frac{49}{56}, \frac{84}{96}, \frac{1025}{120}, \frac{182}{208}$$

$$\frac{1}{2} \frac{9}{18}, \frac{202}{204}, \frac{500}{1000}$$

6. Parul took $\frac{2}{3}$ minutes tanu took $\frac{4}{8}$ minutes

$$\frac{2}{3} \text{ and } \frac{4}{8}$$

$$\frac{2}{3} \quad \frac{8}{8} \quad \frac{4}{4} \quad \frac{3}{3}$$

$$\therefore \frac{2}{3} > \frac{4}{8}$$

Parul took more time.

7. Fraction of book read by Shivi $\frac{50}{200} \frac{1}{4}$

$$\text{Fractions of book read by Vidushi } \frac{1}{5}$$

$$\frac{1}{4} \text{ and } \frac{1}{5}$$

$$\frac{1}{5} \frac{5}{5} \frac{1}{4} \frac{4}{4}$$

\therefore

Vidushi read less book.

8. Fractions of exercise of Mayank $\frac{50}{60} \frac{5}{6}$

$$\text{Now } \frac{5}{6} \text{ and } \frac{3}{4}$$

$$\frac{5}{6} \frac{4}{4}, \frac{3}{4} \frac{6}{6}$$

$$\frac{20}{20} \frac{18}{18}$$

Mayank exercises longer.

9. Saurabh's fraction $\frac{8}{16}$
 Surabhi's fraction $\frac{3}{4}$

Now, $\frac{8}{16}$ and $\frac{3}{4}$

$$\frac{8}{32} \quad \frac{3}{48}$$

Saurabh took less time.

10. Fraction of students got more than 90 marks in VIA

$$\frac{10}{40} \quad \frac{1}{4}$$

Fraction of students got more than 90 marks in VIB

$$\frac{6}{36} \quad \frac{1}{6}$$

Now, $\frac{1}{4}$ and $\frac{1}{6}$

$$\frac{1}{6} \quad \frac{1}{4}$$

In VIA more students got more than 90 marks in mathematics paper.

11. Fraction of biscuit ate by Isha $\frac{4}{8} \quad \frac{1}{2}$
 Fraction of biscuit ate by Preet $\frac{8}{12} \quad \frac{2}{3}$
 Fraction of biscuit ate by Shinky $\frac{10}{15} \quad \frac{2}{3}$

Now $\frac{1}{2}, \frac{2}{3}, \frac{2}{3}$

$$\frac{1}{2} \quad \frac{2}{3} \quad \frac{2}{3}$$

$$\frac{1}{2} \quad \frac{2}{3} \quad \frac{2}{3}$$

$$\frac{3}{6}, \frac{4}{6}, \frac{4}{6}$$

Isha ate least number of biscuits.

12. (a) Ascending order $\frac{1}{6} \quad \frac{5}{6} \quad \frac{7}{6} \quad \frac{9}{6} \quad \frac{17}{6}$
 (b) Ascending order $\frac{0}{11} \quad \frac{1}{11} \quad \frac{2}{11} \quad \frac{3}{11} \quad \frac{11}{11} \quad \frac{15}{11}$
 (c) Ascending order $\frac{1}{50} \quad \frac{1}{23} \quad \frac{1}{12} \quad \frac{1}{7} \quad \frac{1}{5} \quad \frac{1}{4}$
 (d) Descending order $\frac{5}{2} \quad \frac{5}{6} \quad \frac{5}{8} \quad \frac{5}{11} \quad \frac{15}{4} \quad \frac{5}{19}$
 (e) LCM of 2, 5, 4 and 8 is 40
- $$\frac{3}{2} \quad \frac{3}{2} \quad \frac{20}{20} \quad \frac{60}{40}, \frac{1}{5} \quad \frac{1}{5} \quad \frac{8}{8} \quad \frac{8}{40}, \frac{1}{4} \quad \frac{1}{4} \quad \frac{10}{10} \quad \frac{10}{40}$$

$$\frac{5}{8} \quad \frac{5}{8} \quad \frac{5}{5} \quad \frac{25}{40}$$

therefore descending order is

$$\frac{60}{40} \quad \frac{25}{40} \quad \frac{10}{40} \quad \frac{8}{40}$$

Or
$$\frac{3}{2} \quad \frac{5}{8} \quad \frac{1}{4} \quad \frac{1}{5}$$

(f) LCM of 7, 5, 7 and 10 is 70.

$$\frac{2}{7} \quad \frac{2}{7} \quad \frac{10}{10} \quad \frac{20}{70}; \quad \frac{2}{5} \quad \frac{2}{5} \quad \frac{14}{14} \quad \frac{28}{70}$$

$$\frac{0}{7} \quad \frac{10}{10} \quad \frac{0}{70}; \quad \frac{6}{10} \quad \frac{6}{10} \quad \frac{7}{7} \quad \frac{42}{70}$$

descending order is $\frac{42}{70} \quad \frac{28}{70} \quad \frac{20}{70} \quad \frac{0}{70}$ Or $\frac{6}{10} \quad \frac{2}{5} \quad \frac{2}{7} \quad \frac{0}{7}$

Exercise 5.5

1. (i) $\frac{2}{7} \quad \frac{5}{7} \quad 1$; (ii) $\frac{3}{8} \quad \frac{5}{8} \quad 1$; (iii) $\frac{4}{7} \quad \frac{3}{7} \quad 1$
- (iv) $\frac{4}{5} \quad \frac{1}{5} \quad 1$ (v) $\frac{3}{9} \quad \frac{6}{9} \quad 1$
2. (a) $\frac{5}{8}$ should be added to $\frac{3}{8}$ to get 1 (b) $\frac{8}{9}$ should be added to $\frac{1}{9}$ to get 1
- (c) $\frac{1}{5}$ should be added to $\frac{4}{5}$ to get 1 (d) $\frac{4}{15}$ should be added to $\frac{11}{15}$ to get 1
- (e) $\frac{27}{35}$ should be added to $\frac{8}{35}$ to get 1 (f) $\frac{19}{100}$ should be added to $\frac{81}{100}$ to get 1
- (g) $\frac{1}{200}$ should be added to $\frac{199}{200}$ to get 1 (h) $\frac{2}{100}$ should be added to $\frac{998}{1000}$ to get 1
- (i) $\frac{993}{1000}$ should be added to $\frac{7}{1000}$ to get 1 (j) $\frac{4}{225}$ should be added to $\frac{221}{225}$ to get 1
- (k) $\frac{43}{50}$ should be added to $\frac{7}{50}$ to get 1 (l) $\frac{1}{4}$ should be added to $\frac{3}{4}$ to get 1
3. (a) $\frac{1}{9} \quad \frac{1}{9} \quad \frac{2}{9}$ (b) $\frac{1}{3} \quad \frac{2}{3} \quad \frac{3}{3} \quad 1$ (c) $\frac{3}{5} \quad \frac{2}{5} \quad \frac{5}{5} \quad 1$
- (d) $\frac{4}{15} \quad \frac{8}{15} \quad \frac{12}{15} \quad \frac{4}{5}$ (e) $\frac{5}{10} \quad \frac{2}{10} \quad \frac{7}{10}$ (f) $\frac{4}{9} \quad \frac{4}{9} \quad \frac{8}{9}$
4. (a) $\frac{1}{2} \quad \frac{1}{10} \quad \frac{1 \quad 5 \quad 1 \quad 1}{10}$ (LCM of 2, 10 = 10) $\frac{5}{10} \quad \frac{1}{10} \quad \frac{6}{10}$ or $\frac{3}{5}$
- (b) $\frac{1}{8} \quad \frac{1}{24} \quad \frac{1 \quad 3 \quad 1 \quad 1}{24}$ (LCM of 8, 2, 4) is 24 $\frac{3}{24} \quad \frac{1}{24} \quad \frac{4}{24}$ or $\frac{1}{8}, \frac{1}{6}$
- (c) $\frac{1}{4} \quad \frac{1}{20} \quad \frac{1 \quad 5 \quad 1 \quad 1}{20}$ (LCM of 4, 20 is 20) $\frac{5}{20} \quad \frac{1}{20} \quad \frac{6}{20}$ or $\frac{3}{10}$
- (d) $\frac{1}{9} \quad \frac{1}{3} \quad \frac{1 \quad 1 \quad 1 \quad 3}{9}$ (LCM of 9 and 3 is 9) $\frac{1}{9} \quad \frac{3}{9} \quad \frac{4}{9}$



5. (a) $\frac{2}{14} \frac{1}{7} \frac{2}{14} \frac{1}{7} \frac{2}{14} \frac{2}{14} \frac{2}{14} \frac{2}{14} \frac{4}{14} \frac{2}{7}$
- (b) $\frac{56}{72} \frac{1}{24} \frac{56}{72} \frac{1}{24} \frac{3}{3} \frac{56}{72} \frac{3}{72} \frac{56}{72} \frac{3}{72} \frac{59}{72} \frac{9}{4}$
- (c) $\frac{1}{9} \frac{1}{6} \frac{1}{9} \frac{2}{2} \frac{1}{6} \frac{3}{3} \frac{218}{18} \frac{3}{18} \frac{2}{18} \frac{3}{18} \frac{5}{18}$
- (d) $\frac{1}{2} \frac{5}{8} \frac{1}{2} \frac{4}{4} \frac{5}{8} \frac{4}{8} \frac{5}{8} \frac{4}{8} \frac{5}{8} \frac{9}{8}$
- (e) $\frac{6}{13} \frac{5}{39} \frac{6}{13} \frac{3}{3} \frac{5}{39} \frac{18}{39} \frac{5}{39} \frac{23}{39}$
- (f) $\frac{1}{7} \frac{0}{7} \frac{1}{7} \frac{0}{7} \frac{1}{7}$
- (g) $3 \frac{12}{5} \frac{3}{5} \frac{5}{5} \frac{12}{5} \frac{15}{5} \frac{12}{5} \frac{27}{5}$
- (h) $1 \frac{2}{5} \frac{1}{5} \frac{5}{5} \frac{2}{5} \frac{5}{5} \frac{2}{5} \frac{5}{5} \frac{2}{5} \frac{7}{5}$
- (i) $1\frac{1}{4} 3\frac{3}{4} \frac{5}{4} \frac{15}{4} \frac{5}{4} \frac{15}{4} \frac{20}{4} \frac{1}{5}$
- (j) $8\frac{2}{3} 5\frac{1}{4} \frac{26}{3} \frac{21}{4} \frac{26}{3} \frac{4}{4} \frac{21}{4} \frac{3}{3} \frac{104}{12} \frac{63}{12} \frac{104}{12} \frac{63}{12} \frac{169}{12} 13\frac{11}{12}$
- (k) $\frac{8}{3} \frac{0}{7} \frac{5}{7} \frac{1}{2} \frac{8}{3} \frac{14}{14} \frac{0}{7} \frac{6}{6} \frac{5}{7} \frac{6}{6} \frac{1}{2} \frac{21}{21}$
- $$\frac{112}{42} \frac{0}{42} \frac{30}{42} \frac{21}{42}$$
- $$\frac{112}{42} \frac{0}{42} \frac{30}{42} \frac{21}{42} \frac{163}{42} 3\frac{37}{42}$$
- (l) $\frac{1}{2} \frac{1}{3} \frac{1}{4} \frac{1}{2} \frac{6}{6} \frac{1}{3} \frac{4}{4} \frac{1}{3} \frac{3}{3} \frac{6}{12} \frac{4}{12} \frac{3}{12} \frac{6}{12} \frac{4}{12} \frac{3}{12} \frac{13}{12} 1\frac{1}{12}$
6. (a) $\frac{8}{11} \frac{3}{11} \frac{8}{11} \frac{3}{11} \frac{5}{11}$ (b) $\frac{5}{9} \frac{2}{9} \frac{5}{9} \frac{2}{9} \frac{3}{9}$ or $\frac{1}{3}$
- (c) $\frac{7}{7} \frac{3}{7} \frac{7}{7} \frac{3}{7} \frac{4}{7}$ (d) $\frac{15}{15} \frac{1}{15} \frac{15}{15} \frac{1}{15} \frac{14}{15}$
7. (a) $\frac{17}{10} \frac{3}{2} \frac{17}{10} \frac{3}{2} \frac{5}{5} \frac{17}{10} \frac{15}{10} \frac{2}{10}$ or $\frac{1}{5}$
- (b) $\frac{3}{4} \frac{3}{8} \frac{3}{4} \frac{2}{2} \frac{3}{8} \frac{6}{8} \frac{3}{8} \frac{6}{8} \frac{3}{8} \frac{3}{8}$
- (c) $\frac{5}{6} \frac{1}{3} \frac{5}{6} \frac{1}{3} \frac{2}{2} \frac{5}{6} \frac{2}{6} \frac{5}{6} \frac{2}{6} \frac{3}{6}$ or $\frac{1}{2}$
- (d) $\frac{1}{2} \frac{1}{6} \frac{1}{2} \frac{3}{3} \frac{1}{6} \frac{3}{6} \frac{1}{6} \frac{3}{6} \frac{1}{6} \frac{2}{6}$ or $\frac{1}{3}$
- (e) $2\frac{1}{3} 1\frac{2}{3} \frac{2}{3} \frac{3}{3} \frac{1}{3} \frac{1}{3} \frac{3}{3} \frac{2}{3} \frac{7}{3} \frac{5}{3} \frac{7}{3} \frac{5}{3} \frac{2}{3}$



$$(f) \quad 3\frac{3}{4} \quad 2\frac{1}{5} \quad \frac{3}{4} \frac{4}{4} \frac{3}{4} \quad \frac{2}{2} \frac{5}{5} \frac{1}{4} \quad \frac{12}{4} \frac{3}{4} \quad \frac{10}{5} \frac{1}{4} \quad \frac{15}{4} \frac{11}{5}$$

$$\frac{15}{4} \frac{5}{5} \frac{11}{5} \frac{4}{4} \quad \frac{75}{20} \frac{44}{20} \quad \frac{75}{20} \frac{44}{20} \quad \frac{31}{20} \quad 1\frac{11}{20}$$

$$(g) \quad 8\frac{1}{4} \quad 2\frac{5}{6} \quad \frac{8}{4} \frac{4}{4} \frac{1}{4} \quad \frac{2}{6} \frac{6}{6} \frac{5}{4} \quad \frac{33}{4} \quad \frac{17}{6} \quad \frac{33}{4} \frac{3}{3} \quad \frac{17}{6} \frac{2}{2}$$

$$\frac{99}{12} \frac{34}{12} \quad \frac{99}{12} \frac{34}{12} \quad \frac{65}{12} \quad 5\frac{5}{12}$$

$$(h) \quad \frac{1}{1} \frac{5}{8} \frac{1}{1} \frac{8}{8} \frac{5}{8} \frac{8}{8} \frac{5}{8} \frac{8}{8} \frac{5}{8} \frac{3}{8}$$

$$(i) \quad \frac{1}{1} \frac{3}{7} \frac{1}{1} \frac{7}{7} \frac{3}{7} \frac{7}{7} \frac{3}{7} \frac{7}{7} \frac{3}{7} \frac{4}{7}$$

$$(j) \quad 4\frac{2}{5} \quad 3\frac{1}{5} \quad \frac{4}{5} \frac{5}{5} \frac{2}{5} \quad \frac{3}{5} \frac{5}{5} \frac{1}{5} \quad \frac{20}{5} \frac{2}{5} \quad \frac{15}{5} \frac{1}{5} \quad \frac{22}{5} \frac{16}{5} \quad \frac{22}{5} \frac{16}{5} \quad \frac{6}{5} \quad 1\frac{1}{5}$$

$$(k) \quad \frac{5}{24} \quad \frac{1}{24} \quad \frac{5}{24} \frac{1}{24} \quad \frac{4}{24} \text{ or } \frac{1}{6}$$

$$(l) \quad 8\frac{9}{14} \quad 6\frac{3}{14} \quad (8 \quad 6) \quad \frac{9}{4} \frac{3}{14} \quad 2 \quad \frac{9}{4} \frac{3}{4} \quad 2 \quad \frac{6}{14} \quad 2 \quad \frac{3}{7} \quad 2\frac{3}{7}$$

$$8. \quad (a) \quad \frac{2}{9} \frac{4}{9} \frac{6}{9} \quad (b) \quad \frac{2}{5} \frac{0}{5} \frac{2}{5} \quad (c) \quad \frac{8}{17} \frac{3}{17} \frac{5}{17}$$

$$(d) \quad 5 \frac{4}{5} \quad 5\frac{4}{5} \quad (e) \quad 8 \frac{1}{3} \quad 8\frac{1}{3} \quad (f) \quad \frac{7}{8} \frac{5}{8} \frac{1}{4}$$

9. Other piece of wire $\frac{14}{15} \frac{1}{3} \text{ m}$

$$\frac{14}{15} \frac{1}{3} \frac{5}{5} \frac{14}{15} \frac{5}{15} \frac{14}{15} \frac{5}{15} \frac{9}{15}$$

Other piece of wire $\frac{3}{5} \text{ m}$

10. Cake given to Leena $1\frac{1}{4}$

Cake given to Nidhi $1\frac{1}{3}$

Total cake given $1\frac{1}{4} \quad 1\frac{1}{3}$

$$\frac{5}{4} \frac{4}{3} \frac{5}{4} \frac{3}{3} \frac{4}{3} \frac{4}{4} \frac{5}{12} \frac{16}{12} \quad \frac{15}{12} \frac{16}{12} \quad \frac{31}{12}$$

Total cake given to both $2\frac{7}{12}$

11. Geeta bought potatoes $3\frac{1}{2} \text{ kg}$

Geeta bought onions $2\frac{1}{4} \text{ kg}$

Geeta bought tomatoes $1\frac{1}{2}$ kg

$$\begin{array}{r} \text{Total weight of vegetables} \quad 3\frac{1}{2} \quad 2\frac{1}{4} \quad 1\frac{1}{2} \text{ kg} \\ \frac{7}{2} \quad \frac{9}{4} \quad \frac{3}{2} \quad \frac{7}{2} \quad \frac{2}{2} \quad \frac{9}{4} \quad \frac{3}{2} \quad \frac{2}{2} \quad \frac{14}{4} \quad \frac{9}{4} \quad \frac{6}{4} \\ \hline \frac{14}{24} \quad \frac{9}{24} \quad \frac{6}{24} \quad \frac{29}{4} \text{ kg} \end{array}$$

total weight of vegetables bought by Geeta $7\frac{1}{4}$ kg

12. Total distance $5\frac{2}{3}$ km

distance cover by metro $4\frac{1}{2}$ km

$$\begin{array}{r} \text{distance cover by rickshaw} \quad 5\frac{2}{3} \quad 4\frac{1}{2} \text{ km} \\ \frac{17}{3} \quad \frac{9}{2} \quad \frac{17}{3} \quad \frac{2}{2} \quad \frac{9}{2} \quad \frac{3}{3} \quad \frac{34}{6} \quad \frac{27}{6} \\ \hline \frac{34}{6} \quad \frac{27}{6} \quad \frac{7}{6} \end{array}$$

distance cover by rickshaw $1\frac{1}{6}$ km.

13. Time spent in Mathematics and science homework $1\frac{1}{4}$ hr

Time spent in reading Hindi book $\frac{1}{2}$ hr

$$\text{Total time spent} \quad 1\frac{1}{4} \quad \frac{1}{2} \quad \frac{5}{4} \quad \frac{1}{2} \quad \frac{5}{4} \quad \frac{1}{2} \quad \frac{2}{2} \quad \frac{5}{4} \quad \frac{2}{4} \quad \frac{5}{4} \quad \frac{2}{4} \quad \frac{7}{4} \text{ hr}$$

total time spent in home work $1\frac{3}{4}$ hr.

14. time taken by Mohan $\frac{2}{3}$ hr

time taken by Sohan $\frac{3}{5}$ hr

$$\frac{2}{3} \text{ or } \frac{3}{5} \quad \frac{2}{3} \quad \frac{5}{5} \quad \frac{3}{5} \quad \frac{3}{5} \quad \frac{10}{15} \text{ or } \frac{9}{15}$$

Sohan take less time by

$$\frac{10}{15} \quad \frac{9}{15} \quad \frac{10}{15} \quad \frac{9}{15} \quad \frac{1}{15} \text{ hr}$$

$$\begin{array}{r} \text{15.} \quad 4\frac{2}{3} \quad 3\frac{1}{4} \quad \frac{4}{3} \quad \frac{3}{2} \quad \frac{3}{4} \quad \frac{1}{4} \quad \frac{12}{3} \quad \frac{2}{3} \quad \frac{12}{4} \quad \frac{1}{4} \quad \frac{14}{3} \quad \frac{13}{4} \quad \frac{14}{3} \quad \frac{14}{4} \quad \frac{13}{4} \quad \frac{3}{3} \\ \hline \frac{56}{12} \quad \frac{39}{12} \quad \frac{56}{12} \quad \frac{39}{12} \quad \frac{17}{12} \quad 1\frac{5}{12} \end{array}$$



$$16. \quad 5\frac{1}{6} + 4\frac{1}{3} + \frac{5}{6} + \frac{6}{6} + \frac{1}{6} + \frac{4}{3} + \frac{3}{3} + \frac{131}{6} + \frac{13}{3}$$

$$\frac{31}{6} + \frac{13}{3} + \frac{2}{2} + \frac{31}{6} + \frac{26}{6} + \frac{5}{6}$$

$$17. \quad \frac{15}{27} + \frac{7}{18} + \frac{15}{27} + \frac{2}{2} + \frac{7}{18} + \frac{3}{3} + \frac{30}{54} + \frac{21}{54} + \frac{30}{54} + \frac{21}{54} + \frac{9}{54} \text{ or } \frac{1}{6}$$

$$18. \quad \text{Mangoes bought } 2\frac{7}{9} \text{ kg}$$

$$\text{apples bought } 1\frac{5}{18} \text{ kg}$$

$$\text{total fruits bought } 2\frac{7}{9} + 1\frac{5}{18}$$

$$\frac{2}{9} + \frac{7}{9} + \frac{1}{18} + \frac{18}{18} + \frac{5}{18} + \frac{25}{9} + \frac{23}{18}$$

$$\frac{25}{9} + \frac{2}{2} + \frac{23}{18} + \frac{50}{18} + \frac{23}{18} + \frac{73}{18} \text{ kg}$$

$$\text{total fruits bought } 4\frac{1}{18} \text{ kg.}$$

$$19. \quad \text{Total ribbon } 10\frac{3}{4}; \text{ ribbon cut } 2\frac{4}{5} \text{ m}$$

$$\text{ribbon remaining } 10\frac{3}{4} - 2\frac{4}{5} \text{ m}$$

$$\frac{43}{4} - \frac{14}{5} = \frac{43 \cdot 5}{4 \cdot 5} - \frac{14 \cdot 4}{5 \cdot 4}$$

$$\frac{215}{20} - \frac{56}{20} = \frac{215 - 56}{20} = \frac{159}{20}$$

$$\text{ribbon remaining } 7\frac{19}{20} \text{ m.}$$

$$20. \quad \text{Perimeter of triangle } 15\frac{1}{7} \text{ m; Sum of two sides } 9\frac{1}{14} \text{ m}$$

$$\text{length of third side } 15\frac{1}{7} - 9\frac{1}{14}$$

$$(15 - 9) + \frac{1}{7} - \frac{1}{14} = 6 + \frac{1}{7} - \frac{1}{14}$$

$$6 + \frac{2}{14} - \frac{1}{14} = 6 + \frac{2-1}{14} = 6 + \frac{1}{14}$$

$$\text{length of third side } 6\frac{1}{14} \text{ m.}$$

$$21. \quad AB + BC = 4\frac{1}{3} + 5\frac{1}{4} \text{ m}$$

$$\frac{13}{3} + \frac{21}{4} = \frac{13 \cdot 4}{3 \cdot 4} + \frac{21 \cdot 3}{4 \cdot 3} = \frac{52}{12} + \frac{63}{12}$$

$$\frac{52 + 63}{12} = \frac{115}{12} = 9\frac{7}{12}$$

$$AC = (AB + BC) = 9\frac{7}{12} \text{ m}$$

$$= 12\frac{3}{4} - 9\frac{7}{12} = (12 - 9) + \frac{3}{4} - \frac{7}{12}$$

$$= 3 + \frac{3}{4} - \frac{7}{12} = 3 + \frac{9}{12} - \frac{7}{12}$$

$$= 3 + \frac{9-7}{12} = 3 + \frac{2}{12} = 3\frac{1}{6} \text{ m.}$$

22. (a) Ram bought $\frac{50}{100}$ kg of apples and $\frac{49}{100}$ kg of mangoes. How much fruits bought by Ram?
- (b) Sum of two numbers is $\frac{119}{100}$. If one of the number is $\frac{20}{100}$ find the other number.
- (c) What should be subtracted from 1 to get $\frac{1}{100}$.
- (d) Sum of two numbers is 1. If one of them is $\frac{1}{100}$ find the other number.
- (e) Ramesh had $\frac{112}{100}$ m of ribbon. If $\frac{13}{100}$ m of ribbon given to Ram by Ramesh. How much ribbon left with Ramesh.
23. (a) What should be subtracted from $\frac{1}{4}$ to get $\frac{3}{4}$?
- (b) Sita had $\frac{1}{5}$ kg rice and $\frac{4}{5}$ kg of wheat. How much cereal Sita had?
- (c) What is the sum of $\frac{4}{7}$ and $\frac{3}{7}$?
- (d) Ramesh covered $\frac{4}{11}$ km distance by car and $\frac{7}{11}$ km distance by bus. Find total distance travelled by Ramesh.
- (e) What should be added to $\frac{3}{4}$ to get $\frac{7}{4}$.

Multiple Choice Questions

1. (d) 2. (b) 3. (a) 4. (a) 5. (b) 6. (c) 7. (a) 8. (d) 9. (a) 10. (d).

6. Decimals

Exercise 6.1

1. (a) $\frac{5}{10} = 0.5$ (b) $\frac{7}{10} = 0.7$ (c) $\frac{3}{100} = 0.03$
- (d) $\frac{57}{100} = 0.57$ (e) $\frac{75}{1000} = 0.075$
2. (a) $35.6 =$ thirty five point six

- (b) 14.25 = fourteen point two five
 (c) 127.13 = one hundred twenty seven point one three
 (d) 103.22 = one hundred and three point two two
 (e) 715.104 = seven hundred and fifteen point one zero four
3. (a) 0.12 (b) 23.5 (c) 9.009 (d) 167.307
4. (a) $6.23 = 6 \frac{2}{10} \frac{3}{100}$ (b) 10.049 $10 \frac{0}{10} \frac{4}{100} \frac{9}{1000}$
 (c) 44.444 $40 \frac{4}{10} \frac{4}{100} \frac{4}{1000}$ (d) 193.26 $100 \frac{90}{10} \frac{6}{100}$
 (e) 205.19 $200 \frac{0}{10} \frac{5}{100} \frac{9}{1000}$
5. (a) $3.69 = 3 \frac{6}{10} \frac{9}{100}$ (b) 25.309 $20 \frac{5}{10} \frac{3}{100} \frac{9}{1000}$
 (c) 47.906 $40 \frac{7}{10} \frac{9}{100} \frac{6}{1000}$ (d) 83.708 $80 \frac{3}{10} \frac{7}{100} \frac{8}{1000}$
 (e) 123.658 $100 \frac{20}{10} \frac{3}{100} \frac{6}{1000} \frac{5}{10000} \frac{8}{100000}$
6. (a) $0.8 + 0.07 + 0.009 = 0.879$ (b) $3 + .008 + 0.0005 = 3.0085$
 (c) $30 + 0.2 + 0.08 = 31.28$ (d) $10 + 7 + 0.5 + 0.02 + 0.006 = 17.526$
 (e) $30 + 9 + 0.008 + 0.0005 = 39.0085$
7. (a) 1.1, 1.2, 1.3 **1.4, 1.5 1.6** (b) 6.123, 6.124, 6.125, **6.126, 6.127, 6.128**
 (c) 11.8, 11.9, 12.0, **12.1, 12.2, 12.3** (d) 9.001, 9.02, 9.003, **9.004, 9.005, 9.006**
 (e) 27.14, 27.15, 27.16, **27.17, 27.18, 27.19**
8. (a) 2.3 (b) 0.30 (c) 0.2 (d) 0.45
9. (a) $0.6 = 0.60 = 0.600 = 0.6000$ (b) $2.6 = 2.60 = 2.600 = 2.6000$
 (c) $30.5 = 130.50 = 130.500 = 130.5000$
 (d) $129.6 = 129.60 = 129.600 = 129.6000$
10. **Match the columns :**
 Ans. (a) (iii) (b) (iv) (c) (ii) (d) (i).

Exercise 6.2

1. (a) $0.3 < 2.34$ (b) $0.5 > 0.15$ (c) $6.6 > 6.066$ (d) $7.3 = 7.30$ (e) $6.359 < 6.4$ (f) $0.81 > 0.18$ (g) $9.099 < 9.99$ (h) $70.08 < 70.7$ (i) $96.550 = 96.55$
2. (a) 1.200, 2.150, 5.123 are like decimals
 (b) 6.050, 6.600, 6.007 are like fractions
 (c) 8.600, 8.060, 8.006 are like decimals
 (d) 3.150, 3.000, 3.627 are like decimals
3. (a) $0.04 < 0.14 < 1.04 < 1.14$ (b) $19.09 < 19.9 < 20. < 20.001$
 (c) $6 < 6.23 < 6.32 < 6.4$ (d) $1.945 < 19.4 < 19.45 < 194.5$
4. (a) $1.8 = \frac{18}{10} = 1 \frac{8}{10} = 1 \frac{4}{5}$ (b) $0.05 = \frac{5}{100} = \frac{1}{20}$
 (c) $0.125 = \frac{125}{1000} = \frac{1}{8}$ (f) $0.038 = \frac{38}{1000} = \frac{19}{500}$
 (g) $21.26 = \frac{2126}{100} = 21 \frac{26}{100} = 21 \frac{13}{50}$ (h) $87.001 = \frac{87001}{1000} = 87 \frac{1}{1000}$

5. (a) $\frac{7}{10} = 0.7$ (b) $\frac{125}{10} = 2.3$ (c) $\frac{153}{10} = 15.3$
 (d) $\frac{12}{100} = 0.12$ (e) $\frac{8}{100} = 0.08$ (f) $\frac{1030}{100} = 10.30$
 (g) $\frac{30}{1000} = 0.030$ (h) $\frac{87}{1000} = 0.087$ (i) $\frac{9}{1000} = 0.009$
 (j) $\frac{255}{1000} = 0.255$

6. (a) $\frac{3}{5} \frac{3}{5} \frac{2}{2} \frac{6}{10} = 0.6$ (b) $\frac{5}{2} \frac{5}{2} \frac{5}{5} \frac{25}{10} = 2.5$
 (c) $\frac{7}{4} \frac{7}{4} \frac{25}{25} \frac{175}{100} = 1.75$ (d) $\frac{1}{8} \frac{1}{8} \frac{125}{125} \frac{125}{1000} = 0.125$
 (e) $\frac{3}{25} \frac{3}{25} \frac{4}{4} \frac{12}{100} = 0.12$ (f) $\frac{17}{20} \frac{17}{20} \frac{5}{5} \frac{85}{100} = 0.85$
 (g) $\frac{33}{30} \frac{33}{30} \frac{3}{3} \frac{11}{10} = 1.1$ (h) $\frac{8}{125} \frac{8}{125} \frac{8}{8} \frac{64}{1000} = 0.064$
 (i) $1 \frac{5}{10} \frac{10}{10} \frac{1}{10} \frac{5}{10} \frac{10}{10} \frac{5}{10} \frac{15}{10} = 1.5$
 (j) $2 \frac{5}{10} \frac{2}{5} \frac{5}{5} \frac{3}{5} \frac{13}{5} \frac{13}{5} \frac{2}{2} \frac{26}{10} = 2.6$

7. (a) $1 \frac{1}{4} = 1.25$ (b) $\frac{5}{8} = 0.625$ (c) $4 \overline{) 50} (1.25$ (d) $8 \overline{) 50} (1.25$

$$\begin{array}{r} 1 \frac{1}{4} \\ \frac{5}{4} \\ \hline = 1.25 \end{array}$$

$$\begin{array}{r} 4 \overline{) 50} \\ \underline{4} \\ 10 \\ \underline{8} \\ 20 \\ \underline{-20} \\ \times \end{array}$$

$$\begin{array}{r} 8 \overline{) 50} \\ \underline{48} \\ 20 \\ \underline{16} \\ 40 \\ \underline{-40} \\ \times \end{array}$$

(c) $\frac{3}{5} = 0.6$ (d) $\frac{12}{25} = 0.48$ (e) $5 \overline{) 30} (0.6$ (f) $25 \overline{) 120} (0.48$

$$\begin{array}{r} \frac{3}{5} \\ \underline{30} \\ \times \end{array}$$

$$\begin{array}{r} 25 \overline{) 120} \\ \underline{100} \\ 200 \\ \underline{-200} \\ \times \end{array}$$

(e) $9 \frac{3}{5} = 9.6$ (f) $7 \frac{3}{4} = 7.75$ (g) $5 \overline{) 48} (9.6$ (h) $4 \overline{) 31} (9.6$

$$\begin{array}{r} 9 \frac{3}{5} \\ \frac{9}{5} \frac{5}{5} \frac{3}{5} \\ \hline \frac{48}{5} \\ \hline = 9.6 \end{array}$$

$$\begin{array}{r} 5 \overline{) 48} \\ \underline{45} \\ 30 \\ \underline{30} \\ \times \end{array}$$

$$\begin{array}{r} 7 \frac{3}{4} \\ \frac{7}{4} \frac{4}{4} \frac{3}{4} \\ \hline \frac{31}{4} \\ \hline = 7.75 \end{array}$$

$$\begin{array}{r} 4 \overline{) 31} \\ \underline{28} \\ 30 \\ \underline{28} \\ 20 \\ \underline{20} \\ \times \end{array}$$



$$\begin{array}{r} 4 \frac{1}{8} \\ 4 \quad 8 \quad 1 \\ \hline 8 \\ 33 \\ 8 \\ \hline = 4.125 \end{array}$$

$$\begin{array}{r} 8 \overline{) 33} \quad 4.125 \quad (h) \\ \underline{32} \\ 10 \\ \underline{-8} \\ 20 \\ \underline{16} \\ 40 \\ \underline{-40} \\ \hline \times \end{array}$$

$$\begin{array}{r} 8 \frac{6}{10} \\ 8 \quad 10 \quad 6 \\ \hline 10 \\ 86 \\ 10 \\ \hline = 8.6 \end{array}$$

8. Numbers $> \frac{1}{2}$

Exercise 6.3

1. (a)
$$\begin{array}{r} 0.3 \\ + 0.8 \\ \hline 1.1 \end{array}$$

(b)
$$\begin{array}{r} 7.0 \\ + 0.5 \\ \hline 7.5 \end{array}$$

(c)
$$\begin{array}{r} 6.5 \\ + 4.5 \\ \hline 11.0 \end{array}$$

(d)
$$\begin{array}{r} 2.167 \\ + 3.640 \\ \hline 5.807 \end{array}$$

(e)
$$\begin{array}{r} 6.30 \\ + 12.37 \\ \hline 18.67 \end{array}$$

(f)
$$\begin{array}{r} 7.16 \\ + 3.14 \\ \hline 10.30 \end{array}$$

(g)
$$\begin{array}{r} 14.354 \\ + 19.109 \\ \hline 33.463 \end{array}$$

(h)
$$\begin{array}{r} 106.778 \\ + 27.653 \\ \hline 134.431 \end{array}$$

(i)
$$\begin{array}{r} 3.58 \\ 8.90 \\ + 4.13 \\ \hline 16.61 \end{array}$$

(j)
$$\begin{array}{r} 16.50 \\ 26.47 \\ + 3.90 \\ \hline 46.87 \end{array}$$

2. (a)
$$\begin{array}{r} 2.00 \\ - 1.15 \\ \hline 0.85 \end{array}$$

(b)
$$\begin{array}{r} 12.00 \\ - 7.89 \\ \hline 4.11 \end{array}$$

(c)
$$\begin{array}{r} 6.00 \\ - 0.66 \\ \hline 5.34 \end{array}$$

(d)
$$\begin{array}{r} 8.74 \\ - 6.21 \\ \hline 2.53 \end{array}$$

(e)
$$\begin{array}{r} 11.1110 \\ - 1.1111 \\ \hline 9.9999 \end{array}$$

(f)
$$\begin{array}{r} 11.1110 \\ - 1.1111 \\ \hline 9.9999 \end{array}$$

(g)
$$\begin{array}{r} 91.001 \\ - 72.900 \\ \hline 18.101 \end{array}$$

(h)
$$\begin{array}{r} 100.000 \\ - 99.9999 \\ \hline 00.001 \end{array}$$

(i)
$$\begin{array}{r} 300.600 \\ - 197.715 \\ \hline 102.885 \end{array}$$

(j)
$$\begin{array}{r} 108.032 \\ - 86.800 \\ \hline 21.232 \end{array}$$

3. (a) $3 - 3.3 + 2.8$

$$\begin{array}{r} 3.00 \\ + 2.80 \\ \hline 5.80 \end{array} \quad \begin{array}{r} 5.80 \\ - 3.3 \\ \hline 2.50 \end{array}$$

$$3 - 3.3 + 2.8 = 2.50$$

(b) $2.9 + 1.2 - 3.5$

$$\begin{array}{r} 2.9 \\ + 1.2 \\ \hline 4.1 \end{array} \quad \begin{array}{r} 4.1 \\ - 3.5 \\ \hline 0.6 \end{array}$$

$$2.9 + 1.2 - 3.5 = 0.6$$



(c) $3.28 + 6.23 - 4.9$

$$\begin{array}{r} 3.25 \\ +6.23 \\ \hline 9.51 \end{array} \quad \begin{array}{r} 9.51 \\ -4.9 \\ \hline 4.61 \end{array}$$

$3.28 + 6.23 - 4.9 = 4.61$

(e) $6.3 + 4 - 3.5$

$$\begin{array}{r} 6.3 \\ +4.0 \\ \hline 10.3 \end{array} \quad \begin{array}{r} 10.3 \\ -3.5 \\ \hline 6.8 \end{array}$$

$6.3 + 4 - 3.5 = 6.8$

(g) $12.121 + 121.21 - 121.12$

$$\begin{array}{r} 12.121 \\ +121.210 \\ \hline 133.331 \end{array} \quad \begin{array}{r} 133.331 \\ -121.120 \\ \hline 12.211 \end{array}$$

$12.121 + 121.21 - 21.12 = 12.211$

(i) $43.16 + 493.28 - 507.34$

$$\begin{array}{r} 43.16 \\ +493.28 \\ \hline 536.44 \end{array} \quad \begin{array}{r} 101.28 \\ -29.19 \\ \hline 130.47 \end{array}$$

$43.16 + 493.28 - 507.34 = 29.10$

4. 10.000

$$\begin{array}{r} 10.000 \\ -6.125 \\ \hline 3.875 \end{array}$$

3.875 should be added to 6.125 to get 10

(d) $2.36 - 3.24 + 4.57$

$$\begin{array}{r} 2.36 \\ +4.57 \\ \hline 6.93 \end{array} \quad \begin{array}{r} 6.93 \\ -3.24 \\ \hline 3.69 \end{array}$$

$2.36 - 3.24 + 4.57 = 3.69$

(f) $6 - 12.237 + 8.46$

$$\begin{array}{r} 6.00 \\ +8.46 \\ \hline 14.46 \end{array} \quad \begin{array}{r} 14.460 \\ -12.237 \\ \hline 2.223 \end{array}$$

$6 - 12.237 + 8.46 = 2.223$

(h) $24 - 27.047 + 15.26$

$$\begin{array}{r} 24.00 \\ +15.26 \\ \hline 39.26 \end{array} \quad \begin{array}{r} 39.260 \\ -27.047 \\ \hline 12.213 \end{array}$$

$24 - 27.047 + 15.26 = 12.213$

(j) $101.28 + 29.19 - 30.27$

$$\begin{array}{r} 101.28 \\ +29.19 \\ \hline 130.47 \end{array} \quad \begin{array}{r} 130.47 \\ -30.27 \\ \hline 100.20 \end{array}$$

$101.28 + 29.19 - 30.27 = 100.20$

5. greatest two-digit number = 99

$$\begin{array}{r} 102.55 \\ -99.00 \\ \hline 3.55 \end{array}$$

3.55 should be subtracted from 102.55 to get greatest two-digit number

6. 0.0016

$$\begin{array}{r} 0.0016 \\ +993.4500 \\ \hline 993.4516 \end{array}$$

1000.0000

$$\begin{array}{r} 1000.0000 \\ +993.4516 \\ \hline 6.5484 \end{array}$$

7.

$$\begin{array}{r} 31.60 \\ 42.35 \\ +22.75 \\ \hline 96.70 \end{array}$$

total snowfall during three winter months was 96.70 cm



8. $\begin{array}{r} \text{Rosed temperature normal temperature} = 102.60 \\ \text{Temperature above normal was } 4^{\circ}\text{F} = -98.6 \\ \hline 4.00 \end{array}$
9. $\begin{array}{r} \text{height of pea plant on Saturday} = 6.50 \text{ cm} \\ \text{height of pea plant grew} = 0.55 \text{ cm} \\ \hline \text{height of pea plant an Monday} = 7.05 \text{ cm} \end{array}$
10. $\begin{array}{r} \text{Money spend on notebook} = ₹ 5.75 \\ \text{Money spend on pen} = -₹ 107.60 \\ \hline \text{Total money spend} = ₹ 133.35 \end{array}$
11. $\begin{array}{r} 5.39 \quad 16.00 \\ + 8.06 \quad -13.45 \\ \hline 13.45 \quad 2.55 \end{array}$
12. $\begin{array}{r} \text{Sum} \qquad \qquad \text{Difference} \qquad \qquad \qquad 126.61 \\ 68.01 \qquad \qquad 68.01 \qquad \qquad \qquad -9.41 \\ +58.60 \qquad \qquad -58.60 \qquad \qquad \qquad \hline \hline 126.61 \qquad \qquad 9.41 \qquad \qquad \qquad 117.20 \end{array}$
13. $\begin{array}{r} \text{temperature on thursday} = 39.2^{\circ}\text{C} \\ \text{temperature on wednesday} = -37.6^{\circ}\text{C} \\ \hline \text{difference} = 1.6^{\circ}\text{C} \end{array}$
14. $\begin{array}{r} \text{Capacity of two containers} = 145.75 \text{ l} \\ = +250.50 \text{ l} \\ \hline 396.25 \text{ l} \\ \text{capacity of drum} = 725.00 \text{ l} \\ \text{capacity of two containers} = -396.25 \text{ l} \\ \hline \text{oil left in drum} = 328.75 \text{ l} \end{array}$

Multiple Choice Questions

1. (b) 2. (a) 3. (c) 4. (c) 5. (d) 6. (d) 7. (c) 8. (b) 9. (c) 10. (b)

7. Ratio, Proportion and Unitary Method

Exercise 7.1

1. (a) $\frac{36}{42} \frac{6}{7}$ or $6 : 7$ (b) $\frac{AB}{CD} \frac{9}{7} 9 : 7$
- (c) $\frac{\text{passing students}}{\text{appeared students}} \frac{3}{4} \frac{3}{4} 3 : 4$
- (d) defective bulbs = 25
 good bulbs 70 25 45
 ratio $\frac{25}{45} \frac{5}{9} 5 : 9$

2. (a) $16 : 18 = \frac{16}{18} = \frac{8}{9}$ or $8 : 9$ (b) $25 : 45 = \frac{25}{45} = \frac{5}{9}$ or $5 : 9$
- (c) $3 : 39 = \frac{33}{99} = \frac{1}{3}$ or $1 : 3$ (d) $100 : 150 = \frac{100}{150} = \frac{2}{3}$ or $2 : 3$
- (e) $70 : 42 = \frac{70}{42} = \frac{5}{3}$ or $5 : 3$ (f) $50 : 225 = \frac{50}{225} = \frac{2}{9}$ or $2 : 9$
- (g) $65 : 91 = \frac{65}{91} = \frac{5}{7}$ or $5 : 7$ (h) $17 : 34 = \frac{17}{34} = \frac{1}{2}$ or $1 : 2$
- (i) $450 : 270 = \frac{450}{270} = \frac{5}{3}$ or $5 : 3$ (j) $500 : 1000 = \frac{500}{1000} = \frac{1}{2}$ or $1 : 2$
3. (a) $\frac{3.6 \text{ m}}{54 \text{ m}} = \frac{36}{540} = \frac{1}{15} = 1 : 15$
- (b) $\frac{4 \text{ cm}}{5 \text{ m}} = \frac{4 \text{ cm}}{500 \text{ cm}} = \frac{4}{500} = \frac{1}{125} = 1 : 125$
- (c) $\frac{45 \text{ kg}}{180 \text{ kg}} = \frac{45}{180} = \frac{1}{4} = 1 : 4$
- (d) $\frac{70 \text{ minutes}}{210 \text{ seconds}} = \frac{70}{210} = \frac{1}{3}$ or $\frac{60 \text{ minutes}}{210 \text{ seconds}} = \frac{4200}{210} = \frac{20}{1} = 20 : 1$
- (e) $\frac{25 \text{ Paise}}{\text{₹ } 50} = \frac{25 \text{ Paise}}{500 \text{ Paise}} = \frac{1}{200} = 1 : 200$
- (f) $\frac{2.3}{9.2} = \frac{23}{92} = \frac{1}{4} = 1 : 4$
4. (a) $3 : 4$ or $5 : 6 = \frac{3}{4}$ or $\frac{5}{6}$ 6 or $5 \times 4 :: 18 < 20$ $3 : 4 < 5 : 6$
- (b) $9 : 11$ or $7 : 3 = \frac{9}{11}$ or $\frac{7}{3}$ 9 or 7 $11 \cdot 27$ or $77 :: 27 < 77$ $9 : 11 < 7 : 3$
- (c) $1 : 2$ or $3 : 7 = \frac{1}{2}$ or $\frac{3}{7}$ 7 or 3 $2 :: 7 > 6$ $1 : 2 > 3 : 7$
- (d) $5 : 13$ or $2 : 5 = \frac{5}{13}$ or $\frac{2}{5}$ 5 or 2 $13 :: 25 < 26$ $5 : 13 < 2 : 5$
5. (a) The first term of a ratio is called as **antecedent**.
- (b) The second term of a ratio is called the **consequent**.
- (c) Ratio has unit **no**.
6. $\frac{18.6 \text{ m}}{6.2 \text{ m}} = \frac{186}{62} = \frac{3}{1}$ or $3 : 1$
7. sum of ratio $8 + 5 = 13$
Ist part $\frac{8}{13}$ 65 8 5 5 5 25
8. ratio is $\frac{12}{13} : 1$ or $12 : 13$
sum of rate = $12 + 13 = 25$
Ist part $\frac{12}{25}$ 1000 12 40 480

IInd part $\frac{13}{25}$ 1000 13 40 520

9. sum of ratios = $2 + 5 = 7$

Ist number $\frac{2}{7}$ 49 2 7 14

IInd number $\frac{5}{7}$ 49 5 7 35

10. sum of ratio 3 2 2 7

A get $\frac{3}{7}$ 3500 3 500 ₹ = 1500

B get $\frac{2}{7}$ 3500

B get 2 500 = ₹ 1000

C get $\frac{2}{7}$ 3500 2 500

C get = ₹ 1000

11. Let male teachers $3x$

Let female teachers $2x$

∴ male teachers = 30

$$3x = 30 \quad x = 10$$

female teachers $2x = 2 \times 10 = 20$

12. $\frac{1}{3000000}$ $\frac{3}{x}$

$$x = 3 \times 3000000 = 9000000 \text{ cm}$$

$$x = 90000 \text{ m} = 90 \text{ km}$$

towns are 90 km apart in actual

13. Let height of taller brother $8x$

Let height of shorter brother $7x$

∴ shorter brother = 161 cm

$$7x = 161 \quad x = 23$$

height of taller brother $8x = 8 \times 23 = 184 \text{ cm}$

14. (a) $1 : 5$ or $3 : 17$ $\frac{1}{5}$ or $\frac{3}{17}$ $1 : 173$ $5 : 1$ ∴ $1 : 5 > 3 : 7$

(b) $5 : 13$ or $2 : 5$ $\frac{5}{13}$ or $\frac{2}{5}$ $5 : 5$ or $2 : 13$ ∴ $25 < 26$ $5 : 13 < 2 : 5$

(c) $2 : 15$ or $4 : 7$ $\frac{2}{15}$ or $\frac{4}{7}$ $2 : 74$ $15 : 14$ ∴ $14 < 60$ $2 : 15 < 4 : 7$

(d) $11 : 9$ or $3 : 5$ $\frac{11}{9}$ or $\frac{3}{5}$ $11 : 5$ or $3 : 9$ ∴ $55 < 27$ $11 : 9 > 3 : 5$

15. (a) $10 : 7$ or $15 : 22$ $\frac{10}{7}$ or $\frac{15}{22}$ $10 : 22$ $15 : 7$ ∴ $220 > 105$ $10 : 7 > 15 : 22$

(b) $5 : 9$ or $23 : 14$ $\frac{5}{9}$ or $\frac{23}{14}$ $5 : 14$ $23 : 9$ ∴ $70 < 207$ $5 : 9 < 23 : 14$

(c) $9 : 16$ or $4 : 11$ $\frac{9}{16}$ or $\frac{4}{11}$ $9 : 11$ or $4 : 16$ ∴ $99 > 64$ $9 : 16 > 4 : 11$

(d) $7 : 21$ or $2 : 5$ $\frac{7}{21}$ or $\frac{2}{5}$ $7 : 5$ or $2 : 21$ $\therefore 35 < 41$ $7 : 21 < 2 : 5$

Exercise 7.2

1. (a) Extremes of $4 : 5 :: 20 : 25$ are 4 and 25
 (b) Extremes of $22 : 11 :: 88 : 44$ are 22 and 44
 (c) Extremes of $1 : 2 :: 3 : 6$ are 1 and 6
 (d) Extremes of $3 : 4 :: 6 : 8$ are 3 and 8
 (e) Extremes of $16 : 24 :: 24 : 36$ are 16 and 36
 (f) Extremes of $5 : 7 :: 25 : 35$ are 5 and 35
 (g) Extremes of $1 : 6 :: 4 : 24$ are 1 and 24
 (h) Extremes of $50 : 150 :: 100 : 300$ are 50 and 300
2. (a) Means of $25 : 5 :: 20 : 4$ are 5 and 20
 (b) Means of $1 : 4 :: 8 : 32$ are 4 and 8
 (c) Means of $4 : 12 :: 12 : 36$ are 12 and 12
 (d) Means of $2 : 5 :: 16 : 40$ are 5 and 16
 (e) Means of $2 : 3 :: 24 : 36$ are 3 and 24
 (f) Means of $4 : 5 :: 16 : 20$ are 5 and 16
 (g) Means of $25 : 30 :: 16 : 36$ are 30 and 16
 (h) Means of $15 : 32 :: 135 : 288$ are 32 and 135
3. (a) $10 : 15 :: 20 : 25$
 Product of Means 15 20 300
 Product of Extremes 10 25 250
 \therefore Product of Means \neq Product of Extremes
 false
 (b) $24 : 96 :: 16 : 54$
 Product of Means 96 16 1536
 Product of Extremes 24 54 1296
 \therefore Product of means \neq Product of Extremes
 false for nor true
 (c) $1 : 2 :: 3 : 6$
 Product of means 2 3 6
 Product of Extremes 1 6 6
 \therefore Product of means = Product of Extremes
 true
 (d) $75 : 150 :: 3 : 18$
 Product of means 150 3 450
 Product of Extremes 75 18 1350
 \therefore Product of means \neq Product of Extremes
 Not true
 (e) $63 : 105 :: 18 : 30$
 Product of means 105 18 1890
 Product of Extremes 63 30 1890
 \therefore Product of means = Product of Extremes
 true
 (f) $5 : 2 :: 30 : 150$
 Product of means 25 30 750
 Product of Extremes 5 150 750

- \therefore Product of means = Product of Extremes
true
- (g) $66 : 22 :: 2 : 66$
Product of means 22 22 484
Product of Extremes 66 66 4356
 \therefore Product of means \neq Product of Extremes
Not true
- (h) $18 : 24 :: 15 : 20$
Product of means 24 15 360
Product of Extremes 18 20 360
 \therefore Product of means = Product of Extremes
true
4. (a) Product of means 1 8 8
Product of Extremes 4 2 8
 \therefore Product of means = Product of Extremes
 $4 : 1 :: 8 : 2$
- (b) Product of means 8 16 128
Product of Extremes 4 32 128
 \therefore Product of means = Product of Extremes
 $4 : 8 :: 16 : 32$
- (c) Product of means 42 5 210
Product of Extremes 7 30 210
 \therefore Product of means = Product of Extremes
 $7 : 42 :: 5 : 30$
- (d) Product of means 6 15 90
Product of Extremes 9 10 90
 \therefore Product of means = Product of Extremes
 $9 : 65 :: 15 : 10$
- (e) Product of means 7 25 175
Product of Extremes 5 35 175
 \therefore Product of means = Product of Extremes
 $5 : 7 :: 25 : 35$
- (f) Product of means 30 12 360
Product of Extremes 24 15 360
 \therefore Product of means = Product of Extremes
 $24 : 30 :: 12 : 15$
- (g) Product of means 21 10 210
Product of Extremes 35 6 210
 \therefore Product of means = Product of Extremes
 $35 : 21 :: 10 : 6$
- (h) Product of means 45 40 1800
Product of Extremes 60 30 1800
 \therefore Product of means = Product of Extremes
 $60 : 45 :: 40 : 30$
5. (a) $169 : x :: x : 1$
Product of means = Product of Extremes
 $x \quad x \quad 169 \quad 1$

- $x^2 = 169$ $x = \sqrt{169}$ $x = 13$
- (b) $80:32::x:16$
 Product of means = Product of Extremes
 $32 \cdot x = 16 \cdot 80$ $x = \frac{16 \cdot 80}{32}$ $x = 40$
- (c) $x:3::57:19$
 Product of means = Product of Extremes
 $3 \cdot 57 = x \cdot 19$ $x = \frac{3 \cdot 57}{19}$ $x = 9$
- (d) $18:x::27:3$
 Product of means = Product of Extremes
 $x \cdot 27 = 3 \cdot 18$ $x = \frac{3 \cdot 18}{27}$ $x = 2$
- (e) $125:x::x:5$
 Product of means = Product of Extremes
 $x \cdot x = 5 \cdot 125$ $x^2 = 625$ $x = \sqrt{625}$ $x = 25$
- (f) $10:15::12:x$
 Product of means = Product of Extremes
 $15 \cdot 12 = x \cdot 10$ $x = \frac{15 \cdot 12}{10}$ $x = 18$
- (g) $60:x::52:39$
 Product of means = Product of Extremes
 $x \cdot 52 = 39 \cdot 60$ $x = \frac{39 \cdot 60}{52}$ $x = 3 \cdot 15$ $x = 45$
- (h) $11:121::x:23$
 Product of means = Product of Extremes
 $121 \cdot x = 231 \cdot 11$ $x = \frac{231 \cdot 11}{121}$ $x = 21$
6. (a) Let fourth proportion be x
 $21:27::14:x$
 Product of means = Product of Extremes
 $27 \cdot 14 = x \cdot 21$ $x = \frac{27 \cdot 14}{21}$ $x = 18$
 fourth proportion is 18.
- (b) Let fourth proportion be x
 $57:76::108:x$
 \therefore Product of means = Product of Extremes
 $76 \cdot 108 = 57 \cdot x$ $x = \frac{76 \cdot 108}{57}$ $x = 144$
 fourth proportion is 144.



(c) Let the fourth proportion be x

$$3:9::x:27:x$$

\therefore Product of means = Product of Extremes

$$9 \quad 27 \quad 3 \quad x \quad \frac{9 \quad 27}{3} \quad x \quad 81 \quad x$$

fourth proportion is 81.

(d) Next fourth proportion be x

$$1:10::100:x$$

\therefore Product of means = Product of Extremes

$$10 \quad 100 \quad 1 \quad x \quad 1000 \quad x$$

fourth proportion is 1000.

7. (a) Let mean proportion be x

$$36:x::x:16$$

\therefore Product of mean = Product of Extremes

$$x \quad x \quad 36 \quad 16 \quad x^2 \quad 36 \quad 16 \quad x \quad \sqrt{36 \quad 36}$$
$$x \quad 6 \quad 4 \quad x \quad 24$$

mean proportion is 24.

(b) Let mean proportion be x

$$4:x::x:9$$

\therefore Product of means = Product of Extremes

$$x \quad x \quad 4 \quad 9 \quad x^2 \quad 36 \quad x \quad \sqrt{36} \quad x \quad 6$$

mean proportion is 6.

(c) Let mean proportion be x

$$4:x::x:16$$

\therefore Product of means = Product of Extremes

$$x \quad x \quad 4 \quad 16 \quad x^2 \quad 4 \quad 16 \quad x \quad \sqrt{4 \quad 16} \quad x \quad 8$$

fourth proportion is 8.

(d) Let the fourth proportion be x

$$125:x::x:5$$

\therefore Product of means = Product of Extremes

$$x \quad x \quad 125 \quad 5 \quad x^2 \quad 625$$
$$x \quad \sqrt{625} \quad x \quad 25$$

fourth proportion is 25.

(e) Let fourth proportion be x

$$121:x::x:100$$

\therefore Product of means = Product of Extremes

$$x \quad x \quad 121 \quad 100 \quad x^2 \quad 12100$$
$$x \quad \sqrt{12100} \quad x \quad 110$$

fourth proportion is 110.

(f) Let fourth proportion be x

$$32:x::x:50$$

\therefore Product of means = Product of Extremes

$$x \quad x \quad 50 \quad 32 \quad x^2 \quad 1600$$
$$x \quad \sqrt{1600} \quad x \quad 40$$

fourth proportion is 40.



(g) Let fourth proportion be x

$$4 : x :: x : 36$$

\therefore Product of means = Product of Extremes

$$\begin{array}{cccc} x & x & 36 & 4 \\ x^2 & \sqrt{36 \cdot 4} & & x \cdot 12 \end{array}$$

fourth proportion is 12.

(h) Let fourth proportion be x

$$25 : x :: x : 36$$

\therefore Product of means = Product of Extremes

$$\begin{array}{cccc} x & x & 36 & 25 \\ x^2 & \sqrt{36 \cdot 25} & x \cdot 30 & \end{array}$$

fourth proportion is 30.

8. Let number be x

$$x : 32 :: 18 : 24$$

\therefore Product of means = Product of Extremes

$$\begin{array}{cccc} 32 & 18 & x & 24 \\ \frac{32 \cdot 18}{24} & & x & 24 \end{array}$$

24 has the same ratio to 32 as 18 has to 24.

9. If x, y, z are in proportion then,

$$y^2 : xz = 6^2 : x \cdot 12 = 3 : x$$

10. Let 2nd proportion be x

$$42 : x :: 70 : 35$$

\therefore Product of means = Product of Extremes

$$x \cdot 70 = 35 \cdot 42 \Rightarrow x = \frac{35 \cdot 42}{70} = 21$$

2nd proportion is 21.

11. $l : b = 6 : 3 = 80 : b$

\therefore Product of means = Product of Extremes

$$b \cdot 6 = 3 \cdot 80 \Rightarrow b = 40$$

\therefore breadth = 40 cm

12. scale actual

$$1 : 90 :: x : 270$$

\therefore Product of means = Product of Extreme

$$90 \cdot x = 270 \cdot 1 \Rightarrow x = 3$$

270 m represent 3 units on map.

13. Let mean proportion be x

$$9 : x :: x : 4 \Rightarrow x^2 = 36$$

$$x = 6$$

mean proportion is 6.

14. high : l = high : l

$$8 : 352 = 12.5 : l$$

\therefore Product of means = Product of Extremes

$$352 \quad 12.5 \quad 8 \quad | \quad \frac{352 \quad 12.5}{8} \quad |$$

$$44 \quad 12.5 \quad | \quad 550 \quad |$$

12.5 cm high tin hold 550 litres of oil.

15. Let fourth proportion be x

$$15 : 20 :: 30 : x$$

∴ Product of means = Product of Extremes

$$20 \quad 30 \quad 15 \quad x \qquad \frac{20 \quad 30}{15} \quad x \qquad 40 \quad x$$

fourth proportion is 40.

Exercise 7.3

1. 2 kg of sugar cost = ₹ 264

$$1 \text{ kg of sugar cost} = ₹ \frac{264}{2}$$

$$31 \text{ kg of sugar cost} = ₹ \frac{264}{2} \quad 31 \quad ₹ 682$$

2. Price of 15 articles = ₹ 360

$$\text{Price of 1 article} = ₹ \frac{360}{15}$$

$$\text{Price of 21 articles} = ₹ \frac{360}{15} \quad 21 = ₹ 504$$

3. (a) 180 km travelled in = 4 hours

$$1 \text{ km travelled in} = \frac{4}{180} \text{ ours}$$

$$400 \text{ km travelled in} \quad \frac{4}{180} \quad 400 \text{ hours}$$

$$\frac{4}{180} \quad 400 \quad 60 \text{ minutes} = 8 \text{ hrs. } 53 \text{ min } 20 \text{ sec}$$

(b) In 4 hours car travels = 180 km

$$\text{In 1 hour car travels} \quad \frac{180}{4} \text{ km}$$

$$\text{In 12 hours car travels} \quad \frac{180}{4} \quad 12 \text{ km} = 540 \text{ km}$$

4. For ₹ 6825 chairs purchased = 13

$$\text{For ₹ 1 chairs purchased} \quad \frac{13}{6825}$$

$$\text{For ₹ 5250 chairs purchased} \quad \frac{13}{6825} \quad 5250$$

For ₹ 5250 chairs purchased = 10.

5. In 12 months person saves = ₹ 12522

$$\text{In 1 month person saves} = ₹ \frac{12522}{12}$$

$$\text{In 3 months person saves} = ₹ \frac{12522}{12} \quad 3 = ₹ 3130.50$$



6. For ₹ 15 pens bought = 12
 For ₹ 1 pens bought $\frac{12}{15}$
 For ₹ 43.75 pens bought $\frac{12}{15} \times 43.75$
 For ₹ 43.5 pens bought = 35.
7. 84 km journey cost = ₹ 189
 1 km journey cost = ₹ $\frac{189}{84}$
 136 km journey cost = ₹ $\frac{189}{84} \times 136$
 136 km journey cost = ₹ 306.
8. $\frac{3}{5}$ quintal of rice cost = ₹ 180
 1 quintal of rice cost = ₹ $\frac{180}{3/5}$
 $\frac{5}{6}$ quintal of rice cost = ₹ $\frac{180}{3/5} \times \frac{5}{6} = ₹ \frac{180 \times 5}{3} \times \frac{5}{6} = ₹ 250$.
9. For 8 machines mens needed = 20
 For 1 machine mens needed $\frac{20}{8}$
 For 12 machines mens needed $\frac{20}{8} \times 12$
 For 12 machines mens needed = 30.
10. For 150 boys meals supplied = 6
 For 1 boys meals supplied $\frac{6}{150}$
 For 180 boys meals supplied $\frac{6}{150} \times 180$
 For 180 boys meals supplied = 5.

Multiple Choice Questions

1. (b) 2. (a) 3. (d) 4. (a) 5. (b) 6. (a) 7. (b) 8. (c) 9. (b) 10. (d) 11. (b) 12. (c).

8. Introduction to Algebra

Exercise 8.1

- $5n$ stands for multiple of 5.
- (a) 1, 4, 7, 11... (b) adding 3 to previous number
(c) $3n - 2$
- \therefore n th shape is $5n - 1$
(a) 6th shape is $5(6) - 1 = 31$ (b) 21th shape is $5(21) - 1 = 106$
(c) n th shape is $5n - 1$
-

Number of triangles	1	2	3	4	5	6	11	n
Number of matchsticks	3	5	7	9	11	13	23	$2n - 1$



5.	Number of squares	1	2	3	4	7	15	n
	Number of matchsticks	4	8	12	16	28	60	$4n$
	Number of dot	4	7	10	13	22	46	$3n + 1$

6. (a) 25th term $3(25) + 13 = 75 + 13 = 88$
 (b) 100th term $7(100) + 2 = 700 + 2 = 698$
 (c) 31th term $3(31) + 4 = 93 + 4 = 89$
7. (a) $L = 2n$ (b) $W = 4n$ (c) $T = 2n$ (d) $Z = 3n$

Exercise 8.2

1. (c) $(8 - 12) \div 5 = -7/5$ (d) $8 - 14 = -6$ (e) 5
2. (a) $x + 10$ (b) $2y - 11$ (c) $(y - z) \div \frac{1}{4} = 4(y - z)$
 (d) $x - y$ (e) $(x - y) \div xy$
3. (a) seven more than x (b) twice of x decreased by y
 (c) thrice of product of x and y (d) x divided by y
4. (a) $5x - 3$ (b) $6n - 5$
5. $x - x = 0$ or $3 \cdot x = 3x$
6. $10m - n$
7. Age of Ashok after 5 years is $K + 5$
8. Age of Amit m years ago $K - m$

9. (a)

x	3	2	0	-1	-4
$x - 5$	8	7	5	4	1

(b)

x	8	10	-1	9	2
$10 - x$	2	0	11	1	8

Exercise 8.3

1. (a) $x^2y - x^2y^2 - xy^2$
 $(1)^2(2) - (1)^2(2)^2 - (1)(2)^2$
 $1 \cdot 2 - 1 \cdot 4 - 1 \cdot 4$
 $2 - 4 - 4 = -6$
- (b) $4a - 3b - c$
 $4(2) - 3(3) - 5$
 $8 - 9 - 5 = -6$
 $13 - 9 - 4 = 0$
- (c) $a^2 - 2b^2 - 3c^2$
 $0^2 - 2(1)^2 - 3(1)^2$
 $0 - 2 - 3 = -5$



(d) $x^2 \quad y^2 \quad z^2$

$$1^2 \quad (2)^2 \quad (3)^2$$

$$1 \quad 4 \quad 9$$

$$1 \quad 13$$

$$12$$

(e) $4xyz \quad 2xy \quad 3xyz$

$$4(1)(2)(1) \quad 2(1)(2) \quad 3(1)(2)(1)$$

$$8 \quad 4 \quad 6$$

$$8 \quad 6 \quad 4$$

$$14 \quad 4$$

$$10$$

(f) $5 \quad 4x^3 \quad 4x \quad 2a$

$$5 \quad 4(3)^3 \quad 4(3) \quad 2(5)$$

$$5 \quad 4(27) \quad 12 \quad 10$$

$$5 \quad 108 \quad 12 \quad 10$$

$$123 \quad 12$$

$$111$$

2. $\frac{m^2}{3n} \quad \frac{6^2}{3(3)} \quad \frac{36}{9} = 4$

3. $\frac{xy}{w} \quad (x \quad w) \quad \frac{\overset{5}{25} \quad \overset{9}{36}}{\underset{4}{20}} \quad (25 \quad 20)$

4. $3x \quad (2y \quad z) \quad 3(7) \quad (2 \quad 6 \quad 4)$
 $21 \quad (12 \quad 4) \quad 21 \quad 48 \quad 69$

Multiple Choice Questions

1. (c) 2. (a) 3. (c) 4. (b) 5. (a) 6. (c) 7. (d) 8. (a) 9. (b) 10. (c)

Formative Assessment-2

Tick (✓) the correct answers.

1. (b) 2. (a) 3. (c) 4. (b) 25. (b) 6. (b) 7. (c) 8. (a) 9. (a) 10. (b) 11. (b) 12. (d) 13. (d) 14. (b) 15. (b) 16. (c) 17. (b) 18. (c) 19. (b) 20. (a) 21. (a) 22. (c).

Summative Assessment-1

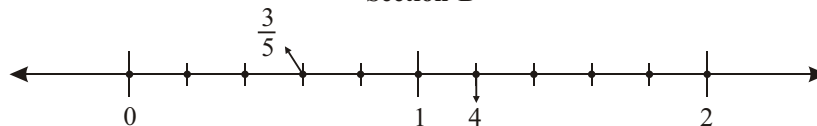
Section-A

Tick (✓) the correct answer.

1. (c) 2. (b) 3. (b) 4. (a) 5. (a) 6. (d) 7. (b) 8. (c).

Section-B

9.



10. $\frac{3}{8}$ or $\frac{4}{5}$ or $\frac{3}{5}$ or $\frac{4}{8}$ \therefore $\frac{15}{40}$ $\frac{32}{40}$ $\frac{3}{8}$ $\frac{4}{5}$



$$11. \quad 15 \frac{1}{10} \quad \frac{15}{10} \quad \frac{10}{10} \quad \frac{1}{10} \quad \frac{151}{10} = 15.1$$

$$12. \quad 176.16, 176.166 \quad 176.16 < 176.166$$

13. $a, 21, 5, 15$ are in proportion

Product of Extremes = Product of means

$$\begin{array}{cccc} a & 15 & 21 & 5 \\ & 15a & 21 & 5 \\ & a & \frac{21}{15} & 5 \\ & & a & 7 \end{array}$$

14. Let number be x

$$6x \quad 10 \quad 32 \quad 6x \quad 32 \quad 10$$

$$6x \quad 42 \quad x \quad 7$$

Number is 7.

Section-C

$$15. \quad \frac{y}{4} \quad \frac{1}{2} \quad \frac{y}{3} \quad 1$$

$$\begin{array}{ccccccc} \frac{y}{4} & \frac{y}{3} & \frac{1}{2} & & & & 1 \\ \hline 3 & y & 4 & y & 1 & 1 & 1 & 2 \\ \hline & 12 & & & & & 2 & \\ \hline 3y & 4y & 1 & 2 & & & & \\ \hline & 12 & & 2 & & & & \\ \hline \frac{y}{12} & \frac{3}{2} & y & \frac{3}{2} & 12 & y & & 8 \end{array}$$

16. Let breadth x

$$\text{length } 3x \quad 4$$

$$\text{Pr } 21(l \quad b)$$

$$20 \quad 2[(3x \quad 4) \quad x]$$

$$20 \quad 2[4x \quad 4] \quad 20 \quad 8x \quad 8$$

$$20 \quad 8 \quad 8x \quad \frac{28}{8} \quad x$$

$$\text{length } 3x \quad 4$$

$$3 \quad \frac{28}{8} \quad 4 \quad \frac{84}{8} \quad 4 \quad \frac{84}{8} \quad \frac{32}{8}$$

$$\text{length } \frac{52}{8} \text{ m} = 6.5 \text{ m}$$

$$17. \quad \frac{\text{1 day Earning of Mr. Das}}{\text{1 day Earning of Mr. Rao}} = \frac{1050}{\frac{7}{1200} \cdot 9}$$

$$\frac{1050}{7} = \frac{9}{1200} \cdot \frac{105 \cdot 9}{8} = 9 : 8$$

8. Let the third proportion be x

$$15 : 25 :: x : 50$$



∴ Product of means = Product of extremes

$$\begin{array}{cccc} 25 & \times & 15 & 50 \\ 25x & & 15 & 50 \\ & & x & \frac{15 \cdot 50}{25} \end{array} \quad x \quad 30$$

19. Cost of 15 m cloth is = ₹ 2850

$$\text{Cost of 1 m cloth is} = ₹ \frac{2850}{15}$$

$$\text{Cost of 11 m cloth is} = ₹ \frac{2850 \cdot 11}{15}$$

$$\text{Cost of 15 m cloth is} = ₹ 2850.$$

20. $234.78 \quad 200 \quad 30 \quad 4 \quad \frac{7}{10} \quad \frac{8}{100}$

21. $6.1 > 2.16 > 1.62 > 1.6$

22. $\frac{3}{5}$ of 45 toffees is $\frac{3}{5} \cdot 45 = 3 \cdot 9 = 27$ toffees

23. Ascending order is $84 \quad 48 \quad 45 \quad 33 \quad 30$

24. ∴ $24 \quad 1 \quad 24; 24 \quad 2 \quad 12; 24 \quad 3 \quad 8; 24 \quad 4 \quad 6$

Factors of 24 are 1, 2, 3, 4, 6, 8, 14, 24.

Section-D

25. Prime numbers between 1 to 30 are 2, 3, 5, 7, 11, 13, 17, 19, 23, 29

26. $\underline{691078}$

$$\begin{array}{r} \text{sum of digits at odd places} = 6 \quad 1 \quad 7 \quad 14 \\ \text{sum of digits at even places} = 9 \quad 0 \quad 8 \quad 17 \\ \text{difference} \qquad \qquad \qquad \underline{\qquad 3} \end{array}$$

∴ difference is not 0 nor multiple of 11
691078 is not divisible by 11.

27.

2	1452
2	726
3	363
11	121
11	11
	1

28.

$$\begin{array}{r} 1452 \quad 2 \quad 2 \quad 3 \quad 11 \quad 11 \\ 4 \quad \boxed{0} \quad 1 \quad 6 \\ \boxed{2} \quad 8 \quad 3 \quad 2 \\ + \quad 1 \quad 2 \quad 9 \quad \boxed{5} \\ \hline 8 \quad 1 \quad \boxed{4} \quad 3 \end{array}$$

29 $4 \ 25 \ 30 \ 125$

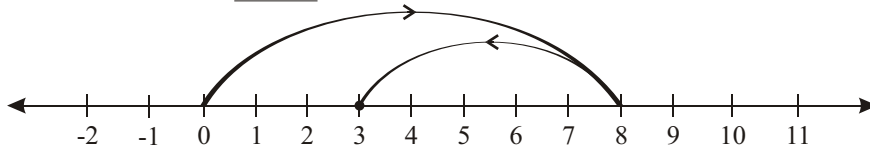
$$\begin{array}{r} (4 \ 25) \ 30 \ 125 \\ (100 \ 125) \ 30 \ 12500 \ 30 = 375000 \end{array}$$

30. Increasing order is
 $4, 63, 257 < 5, 79, 430, < 9, 84, 67 < 36, 75, 214 < 1, 54, 31, 056$

31. 1 month income of Sahil is
 $= ₹ 2,46,000 \div 2$
 $= ₹ 20,500$

32. 8672 is estimated as $= 8700$
 425 is estimated as $= -400$
 estimated difference $= \frac{8300}{}$

33



$$8 - (5) = 3$$

34. 10 men can do work in $= 25$ days
 1 man can do work in $\frac{25}{10}$ days
 50 men can do work in $\frac{25 \times 10}{50}$ days
 50 men can do work in $= 5$ days

9. Linear Equation in One Variable

Exercise 9.1

- | | | |
|--------------------|-------------------|-------------------|
| (a) $5a = 40$ | (b) $x = 8 = 15$ | (c) $25 = a = 1$ |
| (d) $x = 5 = 3$ | (e) $3x = 5 = 16$ | (f) $x = 12 = 24$ |
| (g) $19 = 2x = 11$ | (h) $x = 8 = 7$ | (i) $4x = 3 = 17$ |
| (j) $6x = 5 = x$ | | |
- x is 14 more than 7.
 - twice of number equal to 18.
 - If 11 increased by thrice of a number the result is 17.
 - twice of a number decrease by 3 gives 13.
 - twelve times a number decreased by 30 gives 6.
 - two third of a number gives 8.
- | | |
|------------|-------|
| LHS | RHS |
| $3(4) - 5$ | 7 |
| $12 - 5$ | $= 7$ |

\therefore LHS = RHS
 $x = 4$ is the root of $3x - 5 = 7$
 - | | |
|------------|-----|
| LHS | RHS |
| $3 - 2(3)$ | 9 |
| $3 - 6$ | 9 |

\therefore LHS = RHS
 $x = 3$ is the root of $3 - 2x = 9$

