Exercise 4.1

1. (i) 25
∵ 1 25 25
5 5 25
factors of 25 = 1, 5, 25

(ii) 36
∵ 1 36 36, 2 18 36, 3 12 36,
4 9 36, 6 6 36
factors of 36 = 1, 2, 3, 4, 6, 9, 12, 18, 36

(iii) 40
∵ 1 40 40, 2 20 40,
4 10 40, 5 8 40
factors of 40 = 1, 2, 4, 5, 10, 20, 40

(iv) 56
∵ 1 56 56, 2 28 56,
4 14 56, 8 7 56
factors of 40 = 1, 2, 4, 5, 10, 20, 40

(v) 169
∵ 1 169 169, 13 13 169
factors of 169 = 1, 13, 169

(vi) 225
∵ 1 225 225, 3 75 225,
5 45 225, 15 15 225
factors of 225 = 1, 3, 5, 15, 45, 75, 225

2. (i) ∵ 4 1 4, 4 2 8,
4 3 12, 4 4 16, 4 5 20
Multiples are 4, 8, 12, 16, 20

(ii) ∵ 9 1 9, 9 2 18, 9 3 27,
9 4 36, 9 5 45
First five multiples of 9 are 9, 18, 27, 36, 45

(iii) ∵ 17 1 17, 17 2 34,
17 3 51, 17 4 68, 17 5 85
First five multiples of 17 are 17, 34, 51, 68 and 85

(iv) 35 1 35, 35 2 70, 35 3 105,
35 4 140, 35 5 175
First five multiple of 35 are 35, 70, 105, 140, 175

(v) ∵ 42 1 42, 42 2 84,
42 3 126,
42 4 168, 42 5 210
First five in multiples of 42 are 42, 84, 126, 168, 210

(vi) ∵ 81 1 81, 81 2 162,
81 3 243, 81 4 324, 81 5 405
First five multiples of 81 are 81, 162, 243, 324, 405

3. (i) 2
∵ 2 has only factors as 1 and 2 therefore 2 is a prime number.

(ii) 9
9 has is not a prime number because it has more factor than 1 and itself.

(iii) 17
∵ 17 has only factors as 1 and 17
17 is a prime number

(iv) 27
27 is not a prime number because it has more factors than 1 and itself.

(v) 39
39 is not a prime number because it has more factors than 1 and itself.

(vi) 57
57 is not a prime number because it has more factors than 1 and itself.

4. (i) Prime numbers between 1 and 20 are 2, 3, 5, 7, 11, 13, 17, 19.

(ii) Prime numbers between 30 and 40 are 31, 37.

(iii) Prime numbers between 50 and 70 are 53, 59, 61, 67.

(iv) Prime numbers between 75 and 100 are 79, 83, 89, 97.

(v) Prime numbers between 120 and 130 is 127.

(vi) Prime numbers between 140 to 150 are 143, 147, 149.

5. (i) 12 = 5 + 7
(Prime No.) (Prime No.)

(ii) 49 = 3 + 5 + 41
(Prime No.) (Prime No.) (Prime No.)

(iii) 63 = 7 + 13 + 43
(Prime No.) (Prime No.) (Prime No.)

(iv) $144 = \underset{\text{(Prime No.)}}{71} + \underset{\text{(Prime No.)}}{73}$

6. (i) $12 = \underset{\text{(odd)}}{5} + \underset{\text{(odd)}}{7}$

$36 = \underset{\text{(odd)}}{7} + \underset{\text{(odd)}}{29}$

$42 = \underset{\text{(odd)}}{5} + \underset{\text{(odd)}}{37}$

$84 = \underset{\text{(odd)}}{17} + \underset{\text{(odd)}}{67}$

7. 14

$\because$ 14 1 14,14 2 28,14 3 42 14 4 56,14 5 70,14 6 84, 14 7 98

Multiples of 14 less than 100 are 14, 28, 42, 56, 70, 84, 98

8. (i) Smallest factor of 55 = 1

(ii) Largest factor of 55 = 55

(iii) $\because$ 55 6 330

6th multiple of 55 = 330

9. Odd prime numbers less than 25 are 3, 5, 7, 11, 13, 17, 19, 23

10. Prime numbers less than 25 are 2, 3, 5, 7, 11, 13, 17, 19, 23

11. (i) 24 may be written as 13 11

(ii) 42 may be written as 19 23

(iii) 72 may be written as 41 31

(iv) 80 may be written as 43 37

(v) 96 may be written as 53 43

12. (i) False (ii) False (iii) True (iv) False (v) True (vi) False (vii) False.

Exercise 4.2

1.

Number	Divisible									
	2	3	4	5	6	7	8	9	10	11
236	Y	N	Y	N	N	N	N	N	N	N
525	N	Y	N	Y	N	Y	N	N	N	N
1380	Y	Y	Y	Y	Y	N	N	N	Y	N
5555	N	N	N	Y	N	N	N	N	N	Y
38456	Y	N	Y	N	N	N	Y	N	N	Y
123905	N	N	N	Y	N	N	N	N	N	N
6909	N	Y	N	N	N	Y	N	N	N	N

2. (i) 4225 divisible by 5 because it has 5 at unit place.

(ii) 7240 divisible by 5 because it has 0 at unit place.

(iii) 9273 not divisible 5 because it not has 5 or 0 at unit place.

(iv) 52675 divisible by 5 because it has 5 at unit place.

(v) 82640 divisible by 5 because it has 0 at unit place.

(vi) 325651 not divisible by 5 because it not has 5 or 0 at unit place.

3. (i) 1338 is divisible by 2 because it has 8 at unit place.

$\because$ 1 3 3 8 15

because sum of digit is divisible by 3 therefore 1338 is divisible by 3 also

1338 is divisible by 6 because it is divisible by both 2 and 3.

(ii) 5243 is not divisible by 2 because it not has even number at unit place

5243 is not divisible by 6.

(iii) 2712 is divisible by 2 because it has even number at unit place.
2 7 1 2 12 because the sum of digits of 2712 is divisible by 3.
2712 is divisible by 3.
2712 is divisible by 6 because it is divisible by both 2 and 3.

(iv) 15252 is divisible by 2 because it has even number at unit place
∵ 1 5 2 5 2 15
∵ sum of digits of 15252 is divisible by 3 therefore 15252 is divisible by 3.
15252 is divisible by 6 because it is divisible by both 2 and 3.

(v) ∵ 45875 not has even number at unit place
It is not divisible by 2 and therefore not divisible by 6 also

(vi) 25512 is divisible by 2 because it has even number at unit place
∵ 2 5 5 1 2 15
∵ sum of digits of 25512 is divisible by 3 therefore 25512 is divisible by 3.
25512 is divisible by 6 because it is divisible by both 2 and 3.

4.

Number	**divisible by**		
	2	3	6
(i) 1556	Y	N	N
(ii) 23082	Y	Y	Y
(iii) 5221	N	Y	N
(iv) 34521	N	Y	N

5. (i) 67542
sum of digit at odd places
6 4 2 12
sum of digits at even places
7 5 12
differences 12 12 0
difference of sum of digits at odd places and sum of digits at even places is zero (i.e. divisible by 11)
67542 is divisible by 11.

(ii) 500005
sum of digits at odd places
5 0 0 5
sum of digits at even places
0 0 5 5
difference 5 5 0

∵ difference of sum of digits at odd places and sum of digits of even places is zero (i.e. divisible by 11)
500005 is divisible by 11.

(iii) 3883935
sum of digits at odd places
3 8 9 5 25
sum of digits at even places
8 3 3 14
difference 25 14 11
∵ difference of sum of digits at odd places and sum of digits at even places is 11 (i.e., divisible by 11)
3883835 is divisible by 11.

(iv) 694521
sum of digits at odd places
6 4 2 12
sum of digits at even places
9 5 1 15
difference 15 12 3
∵ difference of sum of digits at odd places and sum of digits of even places is 3 (i.e. not divisible by 11)
694521 is not divisible by 11.

6. (i) 188 ∵ last two digits is divisible by 4 therefore 188 is divisible by 4
∵ Last three digit is not divisible by 8 therefore 188 is not divisible by 8
188 is divisible by 4 but not divisible by 8.

(ii) 276, because last two digits (76) is divisible by 4 therefore 276 is divisible by 4.

∵ Last three digits (276) is not divisible by 8 therefore 276 is divisible by 8.

276 is divisible by 4 but not 8.

(iii) 508 ∵ Last two digits (08) is divisible by 4 therefore 508 is divisible by 4.

∵ Last three digits (508) is not divisible by 8 therefore 508 is not divisible by 8.

508 is divisible by 4 but not divisible by 8.

(iv) 1548 ∵ Last two digits (48) is divisible by 4 therefore 1548 is divisible by 4.

∵ Last three digits (548) is not divisible by 8 therefore 1548 is not divisible by 8.

1548 is divisible by 4 but not divisible by 8.

7. (i) 857

We can write 857 as

57 2(8) 57 16 73

∵ 73 is not divisible by 7 therefore 857 is not divisible by 7.

(ii) 2191

We can write 2191 as

91 2 21 91 42 133

∵ 133 is divisible by 7

2191 is divisible by 7.

(iii) 294

We can write 294 as 94 2 2 98

∵ 98 is divisible by 7 therefore 294 is divisible by 7.

(iv) 3185

3185 can be written as

85 2 31 85 62 147

∵ 147 is divisible by 7 therefore 3185 is divisible by 7.

8. (i) 156**0**9 is divisible by 3.

(ii) 470**0** is divisible by 4.

(iii) 5000**0** is divisible by 8.

(iv) 815**1**3 is divisible by 9.

(v) 6136**0** is divisible by 5.

(vi) 783**1**5 is divisible by 3.

9. (i) 15 is divisible by 5 but not divisible by 10 (there are many examples).

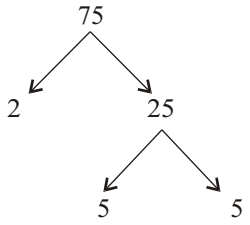
(ii) 15 is divisible by 3 but not divisible by 6 (there are many more examples).

(iii) 5012 is divisible by 4 but not divisible by 8 (there are many more examples).

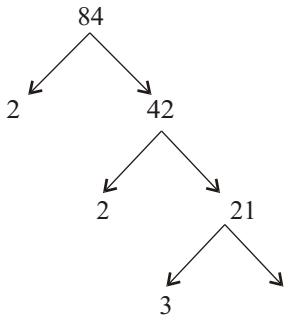
10. (i) True (ii) False (iii) False (iv) True (v) True.

Exercise 4.3

1. (i)



(ii)



2. (i)

2	28
2	14
7	7
	1

28 2 2 7

(ii)

2	36
2	18
3	9
3	3
	1

36 2 2 3 3

(iii)

2	42
3	21
7	7
	1

42 2 3 7

(iv)

2	96
2	48
2	24
2	12
2	6
3	3
	1

96 2 2 2 2 2 3

(v)

2	256
2	128
2	64
2	32
2	16
2	8
2	4
2	2

256 2 2 2 2 2 2 2 2

(vi)

2	288
2	144
2	72
2	36
2	18
3	9
3	3
	1

288 2 2 2 2 2 3 3

(vii)

2	6300
2	3150
3	1575
3	525
5	175
5	35
7	7
	1

6300 2 2 3 3 5 5 7

(viii)

2	2520
2	1260
2	630
3	315
3	105
5	35
7	7
	1

2520 2 2 2 3 3 5 7

(ix)

3	4335
5	1445
17	289
17	17
	1

4335 3 5 17 17

3. ∵ 28 =

2	28
2	14
7	7
	1

28 2 2 7

Given prime factor is complete.

(ii)

2	48
2	24
2	12
2	6
3	3
	1

$\because$ 48 2 2 2 2 3
given prime factor is not complete.

(iii)

2	108
2	54
3	27
3	9
3	3

$\because$ 108 2 2 3 3 3
given prime factor is not complete.

(iv)

2	70
5	35
7	7
	1

$\because$ 70 2 5 7
given prime factor is complete.

4. Largest 3-digit number = 999

3	999
3	333
3	111
37	37
	1

999 3 3 3 27

5. Smallest 5-digit number = 10000

2	10000
2	5000
2	2500
2	1250
5	625
5	125
5	25
5	5

10000 2 2 2 2 5 5 5 5

Exercise 4.4

1. Largest 3-digit number = 999

3	999
3	333
3	111
37	37

Prime factors of 999 3 3 3 37

2. (i) 13860

2	13860
2	6930
3	3465
3	1155
5	385
7	77
	11

13860 2^3 3^2 5 7 11

(ii) 27830

2	27830
5	13915
11	2783
11	253
	23

27830 2 5 11 11 23

$2\ 5\ 11^2\ 23$

(iii)

2	21952
2	10976
2	5488
2	2744
2	1372
2	686
7	343
7	49
7	7
	1

$21952 = 2^6 \times 7^3$

3. (i) 12 [2] [2] 3
24 [2] [2] 2 3
40 [2] [2] 2 5
HCF 2 2 4

(ii) Prime factors of
15 3 (5)
35 (5) 7
50 2 (5) 5
HCF of 15, 35 and 50 = 5.

(iii) Prime factors of
175 [5 5] 7
225 3 3 [5 5]
HCF 5 5 25

(iv) Prime factors of
84 [2] 2 (3) 7
120 [2] 2 2 (3) 5
138 [2] (3) 6
HCF of 84, 120, 138 is 2 3 6

(v) Prime factors of
72 (2) 2 2 (3) (3)
90 (2) (3) (3) 5
HCF of 72 and 90 2 3 3 18

4. HCF of 235, 1075

235) 1075 (4
940
135) 235 (1
135
100) 235 (1
135
100) 135 (1
100
35) 100 (2
70
30) 35 (1
– 30
5) 30 (6
– 30

HCF of 235 and 1075 is 5.

(ii) 864) 936 (1
– 864
72) 864 (12
72
144
– 144

HCF of 864 and 936 = 72.

(iii) 1162) 2241 (1
1162
1079) 1162 (1
1079
83) 1079 (13
83
249
– 249

HCF of 1162 and 2241 = 83.

(iv) 391, 425, 521
First find HCF of 391, 425

391) 425 (1
391
134) 134 (1
268
123) 134 (1
123
11) 123 (11
11
13
11

2) 11 (5
10
1) 2 (2
2

HCF of 391 and 425 is 1.

Now find HCF of 1 and 521.

1) 521 (521
– 521
0

HCF of 391, 425 and 521 = 1

(v) 80, 252, 324

First find HCF of 180 and 252.

180) 252 (1
180
72) 180 (2
144
36) 72 (2
72

HCf of 180, 252 = 36

Now HCF of 36 and 324

36) 324 (9
– 324

HCF of 180, 252 and 324 = 36

5. $\frac{105}{230}$ HCf of 105 and 230

105) 230 (2
210
20) 105 (5
100
5) 20 (4
20

HCF of 105 and 230 = 5

$\frac{105}{230} \quad \frac{5}{5} \quad \frac{21}{46}$

(ii) First find HCf of 84, 144

84) 144 (1
84
60) 84 (1
60
24) 60 (2
48
12) 24 (2
– 24

HCF 12

$\frac{84}{144} \quad \frac{84}{144} \quad \frac{12}{12} \quad \frac{7}{12}$

(iii) First find HCF of 300, 375

300) 375 (1
– 300
75) 300 (4
300

HCF of 300 and 375 = 75

$\frac{300}{375} \quad \frac{300}{375} \quad \frac{75}{75} \quad \frac{4}{5}$

(iv) First find HCF of 128 and 280

128) 280 (2
256
24) 128 (5
120
8) 24 (3
– 24

HCF of 128 and 280 = 8

$\frac{128}{280} \quad \frac{128}{280} \quad \frac{8}{8} \quad \frac{16}{35}$

6. Largest number which divides 856 and 936 leaving no remainder is HCF of 856 and 936

856) 936 (1
856
80) 856 (10
800
56) 80 (1
56
24) 56 (2
48
8) 24 (3
24

8 is largest number which on dividing 856 and 936 leaves no remainder.

7. To find greatest number which divides 615 and 963 leaving the remainder 6 in each case is HCF of (615-6, 963-6) i.e. 609 and 957

609) 957 (1
609
348) 609 (1
348
261) 348 (1
261
87) 261 (3
261

87 is the largest number which divides 615 and 963 leaving the remainder 6 in each case.

8. Greatest number that divide 400, 435 and 541 leaving 9, 10 and 14 as remainder is HCf of (400 9), (435 10) and (541 14) that is HCF of 391, 425 and 527

391) 425 (1
391
34) 391 (11
374
17) 34 (2
– 34

How find HCf of 17 and 527

17) 527 (31
51
17
17

17 is the greatest number.

9. Maximum capacity of a container is the HCf of 120, 144 and 204.

120) 144 (1
– 120
24) 120 (5
120

Now HCF of 24 and 204

24) 204 (8
192
12) 24 (2
– 24

HCF of 120, 144 and 204 = 12

12 litres is the maximum capacity of a container that can measure the kerosene oil tankar in exact number of times.

10. Longest tape in the Room is HCF of 960 cm, 900 cm and 720 cm

Now 900) 960 (1
– 900
60) 900 (15
900

Now HCF of 60 and 720

60) 720 (12
– 720

60 cm is the longest tape which can measure the dimensions of the room exactly.

11. Maximum number of students who can it in a bus is HCF of 180, 252 and 324.

180) 252 (1
180
72) 180 (2
144
36) 72 (2
– 72

Now HCF of 36 and 324

36) 324 (9
– 324
0

36 is the maximum number of students who can sit in a bus.

Exercise 4.5

1. (i) Multiple of 4 = 4, 8, 12, 16, 32..

Multiple of 16 = 16, 32, 48
LCM of 4 and 16 = 16

(ii) Multiple of 7 = 7 14, 21, 28, 35..
Multiple of 27 = 28, 56,...
LCM = 28

(iii) Multiple of 24 = 24, 48, 72, 96....
Multiple of 72 = 72, 144,....
LCM = 72
LCM 24 and 72 is 72

(iv) Multiple of 36 = 36, 72, 108,.....
Multiple of 72 = 72, 144,....
LCM of 36 and 72 = 72.

(v) Multiple of 35 = 35, 70, 105,.....
Multiple of 105 = 105, 210....
LCM of 35 and 105 = 105

2. (i) LCM of 2^2 3^2 and 3 2^3 is 2^3 3^2

(ii) LCM of 2 3^2 5 and 2^2 3 is 2^2 3^2 5

(iii) LCM of 2^2 7 5^2 and 2 7^2 3 is 2^2 7^2 5^2 3

3. (i) Prime factors of
20 2 2 5
35 5 7
86 2 43
LCM 2 2 5 7
20 7 140

(ii) Prime factors of
42 2 3 7
86 2 43
LCM 2 3 7 43
1806

(iii) Prime factors of
12 2 2 3
30 2 3 5
81 3 3 3 3
LCM of 12, 30 and
81 2 2 3 3 3 3 5
4 81 5
1620

(iv) Prime factors of
120 2 2 2 3 5
50 2 5 5
LCM of 120 and 50
2 2 2 3 5 5
8 3 25 600

(v) Prime factors of
220 2 2 5 11
440 2 2 2 5 11
660 2 2 5 5 11
LCM of 220, 440 and 660
2 2 2 3 5 11
1320

4. (i) 54, 81

3	54, 81
3	18, 27
3	6, 9
3	2, 3
2	2, 1
	1, 1

LCM 3 3 3 3 2 162

(ii) 117, 221

3	117, 221
3	39, 221
13	13, 221
17	1, 17
	1, 1

LCM 3 3 13 17 1989

(iii) 224, 280, 336

2	224, 280, 336
2	112, 140, 168
2	56, 70, 84
2	28, 35, 42
2	14, 35, 21
7	7, 35, 21
3	1, 5, 3
5	1, 5, 1
	1, 1, 1

LCM 2 2 2 2 2 7 3 5
3360

5. Smallest number exactly divisible by 12, 20, 24 and 32 is LCM of 12, 20, 24 and 32

2	12, 20, 24, 32
2	6, 10, 12, 16
2	3, 5, 6, 8
2	3, 5, 3, 4
3	3, 5, 3, 2
5	1, 5, 1, 1
	1, 1, 1, 1

Smallest number is

2 2 2 2 2 3 5

32 15 480

6. Smallest number which divided by 15, 20 and 25 leaves a remainder 5 in each case is LCM of (15, 20, 25) plus 5

LCM of 15, 20, 25

2	15, 20, 25
5	15, 10, 25
2	3, 2, 5
3	3, 1, 5
5	1, 1, 5
	1, 1, 1

Smallest number is

(2 2 3 5 5) 5

(12 25) 5 305

305 is the smallest number which divided by 15, 20 and 25 leaves a remainder 5 in each case.

7. First find LCM of 12, 16, 20, 24

2	12, 16, 20, 24
2	6, 8, 10, 12
2	3, 4, 5, 6
2	3, 2, 5, 3
3	3, 1, 5, 3
5	1, 1, 5, 1
	1, 1, 1, 1

LCM is 2 2 2 2 3 5

16 3 5 240

Greatest 4 digit number is 9999.

We divide 9999 by 240 and find the remainder.

240) 9999 (41

960

399

240

159

Smallest number which should be subtracted from 9999 so that the remaining number is exactly divisible by 240 = 159

9999 159 9840

8. First find the LCM of 6, 9, 12, 18

2	6, 9, 12, 18
2	3, 9, 6, 9
3	3, 9, 3, 9
3	1, 3, 1, 3
	1, 1, 1, 1

LCM 2 2 3 3 36

Least four digit number = 1000

We divide 1000 by 36 and find the remainder

36) 1000 (27

– 72

280

– 252

28

Least number which must be added to 1000 so that the sum exactly divisible by

36 36 28 8

Hence the required number is

1000 8 1008

but on dividing by 6, 9, 12 and 18 leaves remainder 3

Required number 1008 3 1011

Exercise 4.6

1. (i) Ist number = 4, IInd number = 28

Product of numbers 4 28 112

4) 28 (7
– 28
___

HCF = 4

LCM of 4 and 28

$$\frac{\text{I}^{\text{st}}\text{ no. II}^{\text{nd}}\text{ no.}}{\text{HCF}}$$

$$\frac{4 \quad 28}{4} \quad 28$$

LCM = 28, HCF = 4, Product = 112

(ii) First number = 9 Product of numbers = 432

IInd number 432 9 48

9) 48 (5
45
3) 9 (3
9
___

HCF of 48 and 9 = 3

$$\text{LCM} \quad \frac{\text{Product of Numbers}}{\text{HCF}}$$

$$\frac{432}{3} \quad 144$$

2nd no. = 48, HCF = 3, LCM = 144

(iii) Given HCF = 3 LCM = 180 Ist number = 15

∵ LCM × HCF = 1st no. × 2nd no.

180 3 15 2nd no.

$$\text{2nd no.} \quad \frac{180 \quad 3}{15} \quad 36$$

Product of numbers 36 15 540

(iv) Given Product of numbers 28512

1st number 198

2nd number 28512 198 144

144) 198 (1
144
54) 144 (2
109
36) 54 (1
36
18) 36 (2
– 36
___

HCF of 144 and 198 = 36

$$\text{LCM} \quad \frac{\text{Product of numbers}}{\text{HCF}}$$

$$\frac{28512}{36} \quad 792$$

(v) We know

LCM × HCF = Product of numbers

2520 HCF 151200

HCF 151200 2520

HCF = 60

2nd number 151200 360 420

2. (i) 75, 90

75) 90 (1
75
15) 75 (5
– 75
___

HCF of 75 and 90 = 15

$$\text{LCM} \quad \frac{\text{Product of numbers}}{\text{HCF}}$$

$$\frac{75 \quad 90}{15}$$

LCM = 450

(ii) 105, 245

105) 245 (2
210
35) 105 (3
105
___

HCF of 105 and 245 = 35

$$\text{LCM} \quad \frac{\text{Product of numbers}}{\text{HCf}}$$

$$\begin{array}{c} 3 \\ \hline \cancel{105} \quad 245 \\ \cancel{35} \end{array}$$

LCM = 735

(iii) 145, 232

145) 232 (1
145
87) 145 (1
87
58) 87 (1
58
29) 58 (2
58
___

HCF of 145 and 232 = 29

LCM $= \frac{\text{Product of numbers}}{\text{HCF}}$

5
29) 145 232
29

LCM = 1160

3. (i) HCF of 35, 45

35) 45 (1
35
10) 35 (3
30
5) 10 (2
10

HCF = 5

LCM of 35, 45

5	35, 45
3	7, 9
3	7, 3
7	7, 1
	1, 1

LCM 5 3 3 7
5 63
315

To prove LCM × HCF = Product of Numbers

315 5 35 45
1575 1575 Verified

(ii) 70, 120

70) 120 (1
70
50) 70 (1
50
20) 50 (2
40
20) 50 (2
40
10) 20 (2
20

HCF 10

LCM of 70, 120

2	70, 120
2	35, 60
2	35, 30
5	35, 15
3	7, 3
7	7, 1
	1 1

LCM 2 2 2 3 5 7 8 15 7
840

To prove
HCF × LCM = Product of numbers
10 840 70 120
8400 = 8400
Verified

(iii) 49, 126

49) 126 (2
98
28) 49 (1
28
21) 28 (1
21
7) 21 (3
21

HCF = 7

LCM of 49, 126

7	49, 126
7	7, 18
2	1, 18
3	1, 9
3	1, 3
	1, 1

7 7 2 3 3
49 18
882

To prove
HCF × LCM = Product of numbers
7 882 49 126
6174 6174
Verified

4. ∵ LCM × HCF = Ist number × IInd number
560 4 28 2nd number
80
560 4
28 2nd number
7
80 2nd number

5. ∵ LCM × HCF = 1st number × 2nd number
LCM × 105 525 945
5
LCM 525 945
105
5 945
LCM = 4725

6. ∵ LCM × HCF = Product of numbers
400 × HCF = 6400
HCF $\frac{6400}{400}$
HCF = 16

7. As 129 is not the multiple of 21
two numbers cannot have HCF = 21 and LCM = 129.

8. (i) 25, 65

25) 65 (2
50
15) 25 (1
15
10) 15 (1
10
5) 10 (2
10

HCF of 25 and 65 = 5
LCM of 25 and 65

5	25, 65
5	5, 13
13	1, 13
	1, 1

LCM 5 5 12 325
To prove
LCM × HCF Ist No. IInd No.
325 5 25 65
1625 1625 Verified

(ii) 81, 135

81) 135 (1
81
54) 81 (1
54
27) 54 (2
– 54

HCf of 81 and 135 = 27
LCM of 81 and 135

3	81, 135
3	27, 45
3	9, 15
3	3, 5
5	1, 5
	1, 1

3 3 3 3 5
81 5 405
To verify
LCM × HCF = 1st no. × 2nd no.
405 27 81 135
10935 = 10935 Verified.

(iii) 117, 221

117) 221 (1
117
104) 117 (1
104
13) 104 (8
104

HCF of 117 and 221 = 13
LCM of 117 and 221

3	117, 221
3	39, 221
13	13, 221
16	1, 17
	1, 1

3 3 13 17 1989

To verify

LCM × HCF = 1st no. × 2nd no.

1989 13 117 221

25857 = 25857 Verified

(iv) 456, 836

HCF of 456 and 836 = 76

456) 836 (1
456
380) 456 (1
380
76) 380 (5
– 380
___

LCM of 456 and 836

2	456, 836
2	228, 418
2	114, 209
3	57, 209
19	19, 209
11	1, 11
	1, 1

2 2 2 3 19 11 5016

To verify

LCM × HCF = 1st no. × 2nd no.

5016 76 456 836

381216 = 381216

Verified

(v) 300, 450

300) 450 (1
300
150) 300 (2
– 300
___

HCF of 300 and 450 = 150

LCM of 300 and 450

2	300, 450
2	150, 225
3	75, 225
3	25, 75
5	25, 25
	1, 1

2 2 3 3 25 900

To verify

LCM × HCF = 1st no. × 2nd no.

900 150 300 450

135000 = 135000

Verified

(vi) 576, 720

576) 720 (1
576
144) 576 (4
576
___

HCF of 576 and 720 = 144

LCM of 576 and 720

2	576, 720
2	288, 360
2	144, 180
2	72, 90
2	36, 45
2	18, 45
3	9, 45
3	3, 15
5	1, 5
	1, 1

LCM 2 2 2 2 2 2 3 3 5

2880

To verify

LCM × HCF = 1st no. × 2nd no.

2880 144 576 720

414720 = 414720

Verified

Exercise 5.1

1. Unit fractions are
$\frac{1}{4}, \frac{1}{12}$

2. $\frac{1}{3}, \frac{2}{3}, \frac{7}{3}, \frac{5}{3}$ and $\frac{1}{9}, \frac{4}{9}, \frac{5}{9}, \frac{11}{9}$ are like fractions

3. Proper fractions are
$\frac{2}{3}, \frac{6}{7}, \frac{5}{8}, \frac{7}{8}, \frac{11}{15}, \frac{5}{7}$
im proper fractions are
$\frac{5}{5}, \frac{9}{5}, \frac{23}{11}, \frac{21}{13}$

4. Mixed fractions are
$3\frac{5}{4}, 1\frac{2}{3}, 2\frac{3}{4}$

5. (i) $\frac{\cancel{10}^{2}}{\cancel{15}_{3}} \quad \frac{2}{3}$ (ii) $\frac{\cancel{30}^{5}}{\cancel{36}_{6}} \quad \frac{5}{6}$

(iii) $\frac{\cancel{18}^{2}}{\cancel{45}_{5}} \quad \frac{2}{5}$ (iv) $\frac{\cancel{41}^{1}}{\cancel{123}_{3}} \quad \frac{1}{3}$

(v) $\frac{80}{240} \quad \frac{\cancel{8}^{1}}{\cancel{24}_{3}} \quad \frac{1}{3}$

(vi) $\frac{27}{36} \quad \frac{\cancel{27}^{3}}{\cancel{36}_{4}} \quad \frac{3}{4}$

(vii) $\frac{146}{365} \quad \frac{146}{365} \quad \frac{73}{73} \quad \frac{2}{5}$

(viii) $\frac{\cancel{243}^{81}}{\cancel{432}_{144}} \quad \frac{\cancel{81}^{27}}{\cancel{144}_{4}} \quad \frac{\cancel{27}^{9}}{\cancel{48}_{16}} \quad \frac{9}{16}$

6. (i) Four equivalent fractions to $\frac{1}{3}$ are
$\frac{1}{3} \frac{2}{2} \quad \frac{2}{6}, \frac{1}{3} \frac{3}{3} \quad \frac{3}{9}, \frac{1}{3} \frac{4}{4} \quad \frac{4}{12},$
$\frac{1}{3} \frac{5}{5} \quad \frac{5}{15}$

(ii) Four equivalent fraction to $\frac{5}{6}$ are
$\frac{5}{6} \frac{2}{2} \quad \frac{10}{12}, \frac{5}{6} \frac{3}{3} \quad \frac{15}{18},$
$\frac{5}{6} \frac{4}{4} \quad \frac{20}{24}, \frac{5}{6} \frac{5}{5} \quad \frac{25}{30}$

(iii) Four equivalent fractions to $\frac{10}{13}$ are
$\frac{10}{13} \frac{2}{2} \quad \frac{20}{26}, \frac{10}{13} \frac{3}{3} \quad \frac{40}{39},$
$\frac{10}{13} \frac{4}{4} \quad \frac{40}{52}, \frac{10}{13} \frac{5}{5} \quad \frac{50}{65}$

(iv) Four equivalent fractions to $\frac{8}{15}$ are
$\frac{8}{15} \frac{2}{2} \quad \frac{16}{30}, \frac{8}{15} \frac{3}{3} \quad \frac{24}{45},$
$\frac{8}{15} \frac{4}{4} \quad \frac{32}{60}, \frac{8}{15} \frac{5}{5} \quad \frac{40}{75}$

7. Fractions equivalent to $\frac{2}{5}$ are
$\frac{8}{20}, \frac{12}{30}, \frac{20}{50}$

8. (i) $\frac{3}{7}, \frac{15}{35}$
$\frac{3}{7} \frac{5}{5}, \frac{15}{35} \frac{1}{1}$
$\frac{15}{35}, \frac{15}{35}$
Yes $\frac{3}{7}$ and $\frac{15}{35}$ are equivalent

alternate method

$\frac{3}{7} \times \frac{15}{35}$
$3 \quad 35 \quad 15 \quad 7$
$105 = 105$
Yes equivalent.

(ii) $\frac{5}{8}, \frac{24}{15}$
$\frac{5}{8} \frac{15}{15}, \frac{24}{15} \frac{8}{8}$
$\frac{75}{120}, \frac{192}{120}$

No $\frac{5}{8}$ and $\frac{24}{15}$ are not equivalent

(iii) $\frac{3}{3}, \frac{7}{7}$

$\frac{3 \quad 7}{3 \quad 7}, \quad \frac{7 \quad 3}{7 \quad 3}$

$\frac{21}{21}, \quad \frac{21}{21}$

Yes $\frac{3}{3}$ and $\frac{7}{7}$ are equivalent.

(iv) $\frac{6}{8}, \frac{12}{16}$

$\frac{6 \quad 2}{8 \quad 2}, \quad \frac{12 \quad 1}{16 \quad 1}$

$\frac{12}{16} \quad \frac{12}{16}$

Yes $\frac{6}{8}, \frac{12}{16}$ are equivalent.

(v) $\frac{15}{16}, \frac{28}{40}$

$\frac{15 \quad 5}{16 \quad 5}, \quad \frac{28 \quad 2}{40 \quad 2}$

$\frac{75}{80}, \quad \frac{56}{80}$

No $\frac{15}{16}$ and $\frac{28}{40}$ are not equivalent.

(vi) $\frac{22}{110}, \frac{4}{20}$

$\frac{22 \quad 2}{110 \quad 2}, \quad \frac{4 \quad 11}{20 \quad 11}$

$\frac{44}{220}, \quad \frac{44}{220}$

Yes $\frac{22}{110}$ and $\frac{4}{20}$ are equivalent.

9. (i) $\frac{7}{8} \quad \frac{7 \quad 2}{8 \quad 2} \quad \frac{14}{16}$

(ii) $\frac{7}{8} \quad \frac{7 \quad 3}{8 \quad 3} \quad \frac{21}{24}$

(iii) $\frac{7}{8} \quad \frac{7 \quad 3}{8 \quad 3} \quad \frac{21}{24}$

(iv) $\frac{7}{8} \quad \frac{7 \quad 5}{8 \quad 5} \quad \frac{35}{40}$

10. (i) 20 paise is $\frac{1}{5}$ of one rupee

(ii) 35 cm is $\frac{7}{20}$ of one metre

(iii) 450 g is $\frac{9}{20}$ of one kg

(iv) 40 minutes is $\frac{2}{3}$ of one hour.

Exercise 5.2

1. (i) $\frac{3}{7} \quad \frac{15}{35}$ (ii) $\frac{5}{8} \quad \frac{24}{15}$

(iii) $\frac{3}{3} \quad \frac{7}{7}$ (iv) $\frac{6}{7} \quad \frac{12}{16}$

(v) $\frac{15}{16} \quad \frac{28}{40}$ (vi) $\frac{22}{110} \quad \frac{4}{21}$

(vii) $\frac{3}{5} \quad \frac{12}{16}$ (viii) $\frac{11}{12} \quad \frac{15}{16}$

(ix) $\frac{13}{21} \quad \frac{3}{5}$

2. (i) $\frac{3}{4}, \frac{4}{5}$

LCM of 4 and 5 = 20

$\frac{3 \quad 5, 4 \quad 4}{20} \quad \frac{15, 16}{20}$

$\because \quad 15 \quad 16$

$\frac{3}{4} \quad \frac{4}{5}$

(ii) $\frac{7}{11}, \frac{13}{22}$

LCM of 11 and 22 = 22

$\frac{7 \quad 2, 13 \quad 1}{22}$

$\frac{14, 13}{22}$

$\frac{7}{11} \quad \frac{13}{22} \qquad \because \quad 14 > 3$

(iii) $\frac{11}{12}, \frac{7}{15}$ LCM of 12 and 15 = 60

$\frac{11 \quad 5, 7 \quad 14}{60}$

$\frac{55, 28}{60}$

$\frac{11}{12} \quad \frac{7}{15} \because \; 55 > 28$

(iv) $\frac{7}{10}, \frac{8}{15}$

LCM of 10 and 15 = 30

$\begin{array}{r} 7 \quad 3,8 \quad 2 \\ \hline 30 \end{array}$

$\begin{array}{r} 21,16 \\ \hline 30 \end{array}$

$\frac{7}{10} \quad \frac{8}{15} \qquad \because \qquad 21 > 16$

(v) $\frac{3}{4}, \frac{7}{15}$

LCM of 4 and 15 = 60

$\begin{array}{r} 3 \quad 15,7 \quad 4 \\ \hline 60 \end{array}$

$\begin{array}{r} 45,28 \\ \hline 60 \end{array}$

$\frac{3}{4} \quad \frac{7}{15} \because 45 > 28$

(vi) $\frac{8}{21}, \frac{5}{12}$

LCM of 21 and 12 is 84

$\begin{array}{r} 8 \quad 4,5 \quad 7 \\ \hline 84 \end{array}$

$\begin{array}{r} 32,35 \\ \hline 84 \end{array}$

$\frac{8}{21} \quad \frac{5}{12} \because 32 < 35$

3. (i) $\frac{7}{3}$

$3\overline{)7}\,(2$

$\underline{6}$

1

Mixed fraction $2\frac{1}{3}$

(ii) $\frac{8}{5}$

$5\overline{)8}\,(1$

$\underline{5}$

3

Mixed fraction of $\frac{8}{5} \quad 1\frac{3}{5}$

(iii) $\frac{11}{9}$

$9\overline{)11}\,(1$

$-\,9$

$\underline{2}$

Mixed fraction of $\frac{11}{9} \quad 1\frac{2}{9}$

(iv) $\frac{21}{10}$

$10\overline{)21}\,(2$

$\underline{20}$

1

Mixed fraction of $\frac{21}{10} \quad 2\frac{1}{10}$

(v) $\frac{47}{20}$

$20\overline{)47}\,(2$

$-\,\underline{40}$

7

Mixed fraction of $\frac{47}{20} \quad 2\frac{7}{20}$

(vi) $\frac{52}{28}$

$28\overline{)42}\,(1$

$-\,\underline{28}$

24

Mixed fraction of $\frac{52}{28} \quad 1\frac{24}{28}$ or $1\frac{6}{7}$

(vii) $\frac{53}{8}$

$8\overline{)53}\,(6$

$-\,\underline{48}$

5

Mixed fraction of $\frac{53}{8} \quad 6\frac{5}{8}$

(viii) $\frac{27}{22}$

$22\overline{)27}\,(1$

$-\,\underline{22}$

5

Mixed fraction of $\frac{27}{22} \quad 1\frac{5}{22}$

4. (i) $1\frac{2}{3} \quad \frac{1 \quad 3 \quad 2}{3} \quad \frac{5}{3}$

(ii) $3\frac{3}{4} \quad \frac{3 \quad 4 \quad 3}{4} \quad \frac{12 \quad 3}{4} \quad \frac{15}{4}$

(iii) $1\frac{7}{11} \quad \frac{1 \quad 11 \quad 7}{11} \quad \frac{11 \quad 7}{11} \quad \frac{18}{11}$

(iv) $5\frac{6}{7}$ $\frac{5 \quad 7 \quad 6}{7}$ $\frac{35 \quad 6}{7}$ $\frac{41}{7}$

(v) $2\frac{1}{5}$ $\frac{2 \quad 5 \quad 1}{5}$ $\frac{10 \quad 1}{5}$ $\frac{11}{5}$

(vi) $6\frac{1}{11}$ $\frac{6 \quad 11 \quad 1}{11}$ $\frac{66 \quad 1}{11}$ $\frac{67}{11}$

(vii) $10\frac{7}{10}$ $\frac{10 \quad 10 \quad 7}{10}$ $\frac{100 \quad 7}{10}$ $\frac{107}{10}$

(viii) $16\frac{3}{8}$ $\frac{16 \quad 8 \quad 3}{8}$ $\frac{128 \quad 3}{8}$ $\frac{131}{8}$

5. (i) $\frac{1}{3}, \frac{5}{6}, \frac{7}{9}$

LCM of 3, 6, 9 = 18

$$\frac{1 \quad 6,5 \quad 3,7 \quad 2}{18}$$

$$\frac{6,15,14}{18}$$

$\because$ $6 < 14 < 15$

Ascending order is $\frac{1}{3} \quad \frac{7}{9} \quad \frac{5}{6}$

(ii) $\frac{3}{5}, \frac{6}{7}, \frac{9}{10}$

LCM of 5, 7, 10 = 70

$$\frac{3 \quad 14,6 \quad 10,9 \quad 7}{70}$$

$$\frac{42,60,63}{70}$$

$\because$ $42 < 60 < 63$

Ascending order is $\frac{3}{5} \quad \frac{6}{7} \quad \frac{9}{10}$

(iii) $\frac{5}{18}, \frac{15}{18}, \frac{7}{12}$

LCM of 18, 18, 12 = 36

$$= \frac{5 \quad 2,15 \quad 2,7 \quad 3}{36}$$

$$\frac{10,30,21}{36}$$

$\because$ $10 \quad 21 \quad 30$

Ascending order is $\frac{5}{18} \quad \frac{7}{12} \quad \frac{15}{18}$

(iv) $\frac{3}{4}, \frac{5}{12}, \frac{5}{3}, \frac{17}{24}$

LCM of 4, 12, 3, 24 = 24

$$\frac{3 \quad 6,5 \quad 2,5 \quad 8,17 \quad 2}{24}$$

$$\frac{18,10,40,34}{2}$$

$\because$ $10 \quad 18 \quad 34 \quad 40$

Ascending order is $\frac{5}{12} \quad \frac{3}{4} \quad \frac{17}{24} \quad \frac{1}{3}$.

(v) $\frac{1}{6}, \frac{2}{9}, \frac{5}{12}, \frac{1}{4}$ LCM of 6, 9, 12, 4 = 36

$$\frac{1 \quad 6,2 \quad 4,5 \quad 3,1 \quad 9}{36}$$

$$\frac{6,8,15,9}{36}$$

$\because$ $6 \quad 8 \quad 9 \quad 15$

Ascending order is $\frac{1}{6} \quad \frac{2}{9} \quad \frac{1}{4} \quad \frac{5}{12}$.

(vi) $\frac{3}{8}, \frac{1}{2}, \frac{5}{6}, \frac{2}{3}$

LCM of 8, 2, 6, 3 = 24

$$\frac{3 \quad 3,1 \quad 12,5 \quad 4,2 \quad 8}{24}$$

$$\frac{9,12,20,16}{24}$$

$\because$ $9 \quad 12 \quad 16 \quad 20$

Ascending order $\frac{3}{8} \quad \frac{1}{2} \quad \frac{2}{3} \quad \frac{5}{6}$.

6. (i) $\frac{3}{4}, \frac{4}{5}, \frac{7}{10}$

LCM of 4, 5, 10 = 20

$$\frac{3 \quad 5,4 \quad 4,7 \quad 2}{20}$$

$$\frac{15,16,14}{20}$$

$16 \quad 15 \quad 14$

Descending order is $\frac{4}{5} \quad \frac{3}{4} \quad \frac{7}{10}$.

(ii) $\frac{11}{12}, \frac{7}{8}, \frac{5}{6}$

LCM of 12, 8, 6 = 24

$$\frac{11 \quad 2,7 \quad 3,5 \quad 4}{24}$$

$$\frac{22,21,20}{24}$$

$22 \quad 21 \quad 20$

Descending order is $\frac{11}{12} \quad \frac{7}{8} \quad \frac{5}{6}$.

(iii) $\frac{3}{14}, \frac{5}{6}, \frac{6}{7}$

LCM of 14, 6, 7 = 42

$$\frac{3 \quad 3,5 \quad 7,6 \quad 6}{42}$$

$$\frac{9,35,36}{42}$$

$\because$ 36 35 9

$$\frac{6}{7} \quad \frac{5}{6} \quad \frac{3}{14}$$

(iv) $\frac{1}{2}, \frac{3}{4}, \frac{5}{8}, \frac{9}{16}$

LCM of 2, 4, 8, 16 = 16

$$\frac{1 \quad 8,3 \quad 4,5 \quad 2,9 \quad 1}{16}$$

$$\frac{8,12,10,9}{16}$$

$\because$ 12 10 9 8

As Descending order is $\frac{3}{4} \quad \frac{5}{8} \quad \frac{9}{16} \quad \frac{1}{2}$.

(v) $\frac{4}{5}, \frac{7}{10}, \frac{8}{15}, \frac{1}{2}$

LCM of 5, 10, 15, 2 = 30

$$\frac{4 \quad 6,7 \quad 3,8 \quad 2,1 \quad 15}{30}$$

$$\frac{24,21,16,15}{30}$$

$\because$ 24 21 16 15

Descending order is $\frac{4}{5} \quad \frac{7}{10} \quad \frac{18}{15} \quad \frac{1}{2}$.

(vi) $\frac{11}{3}, \frac{13}{4}, \frac{19}{6}, \frac{7}{2}$

LCM of 3, 4, 6, 2 = 12

$$\frac{11 \quad 4,13 \quad 3,19 \quad 2,7 \quad 6}{12}$$

$$\frac{44,39,38,42}{12}$$

$\because$ 44 42 39 38

Descending order is $\frac{11}{3} \quad \frac{7}{2} \quad \frac{13}{4} \quad \frac{19}{6}$.

7. Ram Read $\frac{2}{5}$ of 60

$$\frac{2}{\cancel{5}} \quad \frac{12}{\cancel{60}} \quad 24 \text{ pages}$$

Nisha Read $\frac{3}{4}$ of 80

$$\frac{3}{\cancel{4}} \quad \frac{20}{\cancel{80}} \quad 60 \text{ pages}$$

Nisha Read more pages.

8. Passed in Maths $\frac{3}{5}$

Passed in English $\frac{2}{5}$

In Maths students done better

$\because$ $\frac{3}{5} \quad \frac{2}{5}$

Exercise 5.3

1. (i) $\frac{3}{5} \quad \frac{7}{5} \quad \frac{3 \quad 7}{5} \quad \frac{10}{5} \quad 2$

(ii) $\frac{1}{11} \quad \frac{5}{11} \quad \frac{1 \quad 5}{11} \quad \frac{6}{11}$

(iii) $\frac{6}{7} \quad \frac{5}{14}$ [$\because$ LCM of 7, 14 = 14]

$$\frac{6 \quad 2 \quad 5 \quad 1}{14}$$

$$\frac{12 \quad 5}{14}$$

$$\frac{17}{14} \quad 1\frac{3}{14}$$

(iv) $\frac{2}{3} \quad \frac{5}{8}$ [$\because$ LCM of 3 and 8 = 24]

$$\frac{2 \quad 8 \quad 5 \quad 3}{24}$$

$$\frac{16 \quad 15}{24}$$

$$\frac{31}{24} \quad 1\frac{7}{24}$$

converting into mixed fraction.

(v) $\frac{1}{4} \quad \frac{1}{5} \quad \frac{1}{10}$

[$\because$ LCM of 4, 5 and 10 = 20]

$$\frac{1 \quad 5 \quad 1 \quad 4 \quad 1 \quad 2}{20}$$

$$\frac{5 \quad 4 \quad 2}{20} \quad \frac{11}{20}$$

(vi) $\frac{1}{4} \quad \frac{5}{8} \quad \frac{1}{12}$

[$\because$ LCM of 4, 8 and 12 = 24]

$$\frac{1\ 6\ 5\ 3\ 1\ 2}{24}$$

$$\frac{6\ 15\ 2}{24}\quad\frac{23}{24}.$$

2. (i) $5\quad 6\frac{1}{7}$

$$5\quad 6\quad \frac{1}{7}$$

$$5\quad 6\quad \frac{1}{7}$$

$$11\quad \frac{1}{7}$$

$$11\frac{1}{7}$$

(ii) $5\frac{3}{8}\quad 6\frac{1}{10}$

$$5\quad \frac{3}{8}\quad 6\quad \frac{1}{10}$$

Adding whole numbers

$$(5\quad 6)\quad \frac{3}{8}\quad \frac{1}{10}$$

$$11\quad \frac{3}{8}\quad \frac{1}{10}$$

$$11\quad \frac{3\ \ 5\ \ 1\ \ 4}{40}$$

$$11\quad \frac{15\ \ 4}{40}$$

$$11\quad \frac{19}{40}$$

$$11\frac{19}{40}.$$

(iii) $3\frac{3}{4}\quad 6\frac{1}{8}$

$$3\quad \frac{3}{4}\quad 6\quad \frac{1}{8}$$

$$(3\quad 6)\quad \frac{3}{4}\quad \frac{1}{8}$$

$$9\quad \frac{3\ \ 2\ \ 1\ \ 1}{8}$$

$$9\quad \frac{6\ \ 1}{8}$$

$$9\quad \frac{7}{8}$$

$$9\frac{7}{8}$$

(iv) $2\quad 1\frac{1}{4}\quad 3\frac{3}{8}$

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

$$(2\quad 1\quad 3)\quad \frac{1}{4}\quad \frac{3}{8}$$

$$6\quad \frac{1\ \ 2\ \ 3\ \ 1}{8}$$

$$6\quad \frac{2\ \ 3}{8}$$

$$6\quad \frac{5}{8}$$

$$6\frac{5}{8}$$

(v) $7\frac{1}{2}\quad 2\frac{1}{3}\quad 4\frac{1}{6}$

$$7\quad \frac{1}{2}\quad 2\quad \frac{1}{3}\quad 4\quad \frac{1}{6}$$

$$(7\quad 2\quad 4)\quad \frac{1}{2}\quad \frac{1}{3}\quad \frac{1}{6}$$

$$13\quad \frac{1\ \ 3\ \ 1\ \ 1\ \ 1}{6}$$

$$13\quad \frac{3\ \ 2\ \ 1}{6}$$

$$13\quad \frac{6}{6}$$

$$13\quad 1$$

14

(vi) $2\frac{7}{11}$ $1\frac{1}{22}$ $2\frac{7}{33}$

$2\ \frac{7}{11}\ 1\ \frac{1}{22}\ 2\ \frac{7}{33}$

$(2\ \ 1\ \ 2)\ \ \frac{7}{11}\ \ \frac{1}{22}\ \ \frac{7}{33}$

$5\ \ \frac{7\ \ 6\ \ 1\ \ 3\ \ 7\ \ 2}{66}$

$5\ \ \frac{42\ \ 3\ \ 14}{66}$

$5\ \ \frac{59}{66}\ \ 5\frac{59}{66}$

3. (i) $\frac{3}{4}\ \ \frac{1}{4}$

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

$\frac{2}{4}$

$\frac{1}{2}$

(ii) $\frac{7}{8}\ \ \frac{5}{8}$

$\frac{7\ \ 5}{8}$

$\frac{2}{8}\ \ \frac{1}{4}$

(iii) $\frac{9}{11}\ \ \frac{8}{11}$

$\frac{9\ \ 8}{11}\ \ \frac{1}{11}$

(iv) $\frac{3}{4}\ \ \frac{1}{3}$

$\frac{3\ \ 3\ \ 1\ \ 4}{12}$

$\frac{9\ \ 4}{12}\ \ \frac{5}{12}$

(v) $\frac{7}{8}\ \ \frac{5}{6}$

$\frac{7\ \ 3\ \ 5\ \ 4}{24}$

$\frac{21\ \ 20}{24}\ \ \frac{1}{24}$

(vi) $\frac{5}{8}\ \ \frac{1}{11}$

$\frac{5\ \ 11\ \ 1\ \ 8}{88}$

$\frac{55\ \ 8}{88}\ \ \frac{47}{88}$

4. (i) $5\frac{7}{8}\ \ 1\frac{3}{8}$

$\frac{47}{8}\ \ \frac{11}{8}$

$\frac{47\ \ 11}{8}$

$\frac{36}{8}\ \ \frac{9}{2}\ \ 4\frac{1}{2}$

(ii) $3\frac{7}{12}\ \ \frac{1}{12}$

$\frac{43}{12}\ \ \frac{1}{12}$

$\frac{43\ \ 1}{12}$

$\frac{42}{12}$

$3\frac{6}{12}\ \ 3\frac{1}{2}$

(iii) $5\frac{3}{8}\ \ 2\frac{1}{8}$

$\frac{43}{8}\ \ \frac{17}{8}$

$$\frac{43 \quad 17}{8}$$

$$\frac{26}{8}$$

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

(iv) $7\frac{8}{21} \quad 1\frac{3}{8}$

$$\frac{155}{21} \quad \frac{11}{8}$$

$$\frac{155 \quad 8 \quad 11 \quad 21}{168}$$

$$\frac{1240 \quad 231}{168}$$

$$\frac{1009}{168}$$

$$6\frac{1}{168}$$

(v) $7\frac{5}{16} \quad 1\frac{5}{24}$

$$\frac{117}{16} \quad \frac{29}{24}$$

$$\frac{117 \quad 3 \quad 29 \quad 2}{48}$$

$$\frac{351 \quad 58}{48}$$

$$\frac{293}{48} \quad 6\frac{5}{48}$$

(vi) $4\frac{5}{12} \quad \frac{7}{3}$

$$\frac{53}{12} \quad \frac{7}{3}$$

$$\frac{53 \quad 7 \quad 4}{12}$$

$$\frac{53 \quad 28}{12}$$

$$\frac{25}{12} \quad 2\frac{1}{12}$$

5. (i) $7 \quad \frac{14}{23} \quad \frac{5}{46}$

$$7 \quad \frac{14 \quad 2 \quad 5 \quad 1}{46}$$

$$7 \quad \frac{28 \quad 5}{46}$$

$$7 \quad \frac{23}{46}$$

$$7 \quad \frac{1}{2} \quad 7\frac{1}{2}$$

(ii) $5 \quad 6\frac{1}{7} \quad 5\frac{1}{14}$

$$5 \quad 6 \quad \frac{1}{7} \quad 5 \quad \frac{1}{14}$$

$$5 \quad 6 \quad \frac{1}{7} \quad 5 \quad \frac{1}{14}$$

$$(5 \quad 6 \quad 5) \quad \frac{1}{7} \quad \frac{1}{14}$$

$$6 \quad \frac{1 \quad 2 \quad 1}{14}$$

$$6 \quad \frac{1}{14} \quad 6\frac{1}{14}$$

(iii) $4\frac{1}{2} \quad 2\frac{3}{4} \quad 1\frac{1}{6} \quad 2\frac{5}{12}$

$$4 \quad \frac{1}{2} \quad 2 \quad \frac{3}{4} \quad 1 \quad \frac{1}{6}$$

$$2 \quad \frac{5}{12}$$

$$4 \quad \frac{1}{2} \quad 2 \quad \frac{3}{4} \quad 1 \quad \frac{1}{6} \quad 2 \quad \frac{5}{12}$$

Collecting whole numbers and fractions

$$(4 \quad 2 \quad 1 \quad 2) \quad \frac{1}{2} \quad \frac{3}{4} \quad \frac{1}{6} \quad \frac{5}{12}$$

$$3 \quad \frac{16331251}{12}$$

$$3 \quad \frac{6925}{12}$$

$$3 \quad \frac{15\ 7}{12}$$

$$3 \quad \frac{8}{12}$$

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

(iv) $9\frac{7}{15} \quad 2\frac{1}{5} \quad 7\frac{11}{30} \quad 3\frac{2}{25}$

$$9 \quad \frac{7}{15} \qquad 2 \quad \frac{1}{5} \qquad 7 \quad \frac{11}{30}$$

$$3 \quad \frac{2}{25}$$

$$9 \quad \frac{7}{15} \quad 2 \quad \frac{1}{5} \quad 7 \quad \frac{11}{30} \quad 3 \quad \frac{2}{25}$$

Collecting whole numbers and fractions

$$(9 \quad 2 \quad 7 \quad 3) \quad \frac{7}{15} \quad \frac{1}{5} \quad \frac{11}{30} \quad \frac{2}{25}$$

$$1 \quad \frac{7 \quad 10 \quad 1 \quad 30 \quad 11 \quad 5 \quad 2 \quad 6}{150}$$

$$1 \quad \frac{70 \quad 30 \quad 55 \quad 12}{150}$$

$$1 \quad \frac{100 \quad 67}{150}$$

$$1 \quad \frac{23}{150} \quad 1\frac{33}{150}$$

6. Boy spent in fair ₹ $10\frac{1}{4}$

His brother spent in fair ₹ $7\frac{2}{5}$

Both spent in fair ₹ $10\frac{1}{4} \quad 7\frac{2}{5}$

₹ $10 \quad \frac{1}{4} \quad 7 \quad \frac{2}{5}$

₹ $17 \quad \frac{1}{4} \quad \frac{2}{5}$

₹ $17 \quad \frac{1524}{20}$

₹ $17 \quad \frac{13}{20}$

Money spend by both ₹ $17\frac{13}{20}$.

7. Cloth used in Kurta $2\frac{7}{10}$ metres

Cloth used in Salwar $1\frac{3}{5}$ metres

Cloth used in these Clothes

$$2\frac{7}{10} \quad 1\frac{3}{5} \text{ metres}$$

$$2 \quad \frac{7}{10} \quad 1 \quad \frac{3}{5} \text{ metres}$$

$$(2 \quad 1) \quad \frac{7}{10} \quad \frac{3}{5}$$

$$3 \quad \frac{7\ 1\ 3\ 2}{10}$$

$$3 \quad \frac{7 \quad 6}{10} \text{ metres}$$

$$3 \quad \frac{13}{10} \text{ metres}$$

$$3 \quad 1\frac{3}{10} \text{ metres}$$

$$3 \quad 1 \quad \frac{3}{10} \text{ metres}$$

$$3 \quad 1 \quad \frac{3}{10} \text{ metres}$$

$$4 \quad \frac{3}{10} \text{ metres}$$

$4\frac{3}{10}$ metres

9. Wheat bought $15\frac{1}{2}$ quintal

Maize bought $3\frac{1}{4}$ quintal

Gram bought $6\frac{3}{5}$ quintal

Total Cereals bought

$15\frac{1}{2}$ $3\frac{1}{4}$ $6\frac{3}{5}$ quintals

$15 \quad \frac{1}{2} \quad 3 \quad \frac{1}{4} \quad 6 \quad \frac{3}{5}$ quintals

$(15 \quad 3 \quad 6) \quad \frac{1}{2} \quad \frac{1}{4} \quad \frac{3}{5}$ quintals

$24 \quad \frac{1}{2} \quad \frac{1}{4} \quad \frac{3}{5}$

$24 \quad \frac{1 \quad 10 \quad 1 \quad 5 \quad 3 \quad 4}{20}$

$24 \quad \frac{10 \quad 15 \quad 12}{20}$ quintals

$24 \quad \frac{27}{20}$ quintals

$24 \quad 1\frac{7}{20} \qquad 24 \quad 1 \quad \frac{7}{20}$

Cereals bought $25\frac{7}{20}$ quintals

9. Height of Mohan $140\frac{1}{5}$ cm

Height of Sohan $138\frac{3}{4}$ cm

Mohan is taller than Sohan by

$140\frac{1}{5} \quad 138\frac{3}{4}$

$140 \quad \frac{1}{5} \qquad 138 \quad \frac{3}{4}$

$140 \quad \frac{1}{5} \quad 138 \quad \frac{3}{4}$

$(140 \quad 138) \quad \frac{1}{5} \quad \frac{3}{4}$

$2 \quad \frac{1 \quad 4 \quad 3 \quad 5}{20}$

$2 \quad \frac{4 \quad 15}{20}$

$2 \quad \frac{11}{20}$ cm $\quad \frac{40 \quad 11}{20}$ cm

$\frac{29}{20}$ cm $\quad 1\frac{9}{20}$ cm

10. Distance travelled by a man in 3 days

$= 20\frac{1}{4}$ km

Distance travelled by a man is 1st day

$5\frac{1}{2}$ km

Distance travelled by a man in 2nd day

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

Distance travelled in 3rd day

$20\frac{1}{4} \quad 5\frac{1}{2} \quad 6\frac{3}{4}$

$20 \quad \frac{1}{4} \quad 5 \quad \frac{1}{2} \quad 6 \quad \frac{3}{4}$

$20 \quad \frac{1}{4} \quad 5 \quad \frac{1}{2} \quad 6 \quad \frac{3}{4}$

$(20 \quad 5 \quad 6) \quad \frac{1}{4} \quad \frac{1}{2} \quad \frac{3}{4}$

$(20 \quad 11) \quad \frac{1 \quad 2 \quad 3}{4}$

$9 \quad \frac{1 \quad 5}{4} \qquad 9 \quad \frac{4}{4}$

9 1 8 km.