

EXERCISE 3.6

PAGE NO: 63

1. Find the HCF of the following numbers :

- (a) 18, 48
- (b) 30, 42
- (c) 18, 60
- (d) 27, 63
- (e) 36, 84
- (f) 34, 102
- (g) 70, 105, 175
- (h) 91, 112, 49
- (i) 18, 54, 81
- (j) 12, 45, 75

Solutions:

(a) 18, 48

2	18
3	9
3	3
	1

2	48
2	24
2	12
2	6
3	3
	1

$$18 = 2 \times 3 \times 3$$

$$48 = 2 \times 2 \times 2 \times 2 \times 3$$

$$\text{HCF} = 2 \times 3 = 6$$

Therefore the HCF of 18, 48 is 6

(b) 30, 42

2	30
3	15
5	5
	1

2	42
3	21
7	7
	1

$$30 = 2 \times 3 \times 5$$

$$42 = 2 \times 3 \times 7$$

$$\text{HCF} = 2 \times 3 = 6$$

Therefore the HCF of 30, 42 is 6

(c) 18, 60

2	18
3	9
3	3
	1

2	60
2	30
3	15
5	5
	1

$$18 = 2 \times 3 \times 3$$

$$60 = 2 \times 2 \times 3 \times 5$$

$$\text{HCF} = 2 \times 3 = 6$$

Therefore the HCF of 18, 60 is 6

(d) 27, 63

3	27
3	9
3	3
	1

3	63
3	21
7	7
	1

$$27 = 3 \times 3 \times 3$$

$$63 = 3 \times 3 \times 7$$

$$\text{HCF} = 3 \times 3 = 9$$

Therefore the HCF of 27, 63 is 9

(e) 36, 84

2	36
2	18
3	9
3	3
	1

2	84
2	42
3	21
7	7
	1

$$36 = 2 \times 2 \times 3 \times 3$$

$$84 = 2 \times 2 \times 3 \times 7$$

$$\text{HCF} = 2 \times 2 \times 3 = 12$$

Therefore the HCF of 36, 84 is 12
(f) 34, 102

2	34
17	17
	1

2	102
3	51
17	17
	1

$$34 = 2 \times 17$$

$$102 = 2 \times 3 \times 17$$

$$\text{HCF} = 2 \times 17 = 34$$

Therefore the HCF of 34, 102 is 34
(g) 70, 105, 175

2	70
5	35
7	7
	1

3	105
5	35
7	7
	1

5	175
5	35
7	7
	1

$$70 = 2 \times 5 \times 7$$

$$105 = 3 \times 5 \times 7$$

$$175 = 5 \times 5 \times 7$$

$$\text{HCF} = 5 \times 7 = 35$$

Therefore the HCF of 70, 105, 175 is 35
(h) 91, 112, 49

7	91
13	13
	1

2	112
2	56
2	28
2	14
7	7
	1

7	49
7	7
	1

$$91 = 7 \times 13$$

$$112 = 2 \times 2 \times 2 \times 2 \times 7$$

$$49 = 7 \times 7$$

$$\text{HCF} = 7$$

Therefore the HCF of 91, 112, 49 is 7

(i) 18, 54, 81

2	18
3	9
3	3
	1

2	54
3	27
3	9
3	3
	1

3	81
3	27
3	9
3	3
	1

$$18 = 2 \times 3 \times 3$$

$$54 = 2 \times 3 \times 3 \times 3$$

$$81 = 3 \times 3 \times 3 \times 3$$

$$\text{HCF} = 3 \times 3 = 9$$

Therefore the HCF of 18, 54, 81 is 9

(j) 12, 45, 75

2	12
2	6
3	3
	1

3	45
3	15
5	5
	1

3	75
5	25
5	5
	1

$$12 = 2 \times 2 \times 3$$

$$45 = 3 \times 3 \times 5$$

$$75 = 3 \times 5 \times 5$$

$$\text{HCF} = 3$$

Therefore the HCF of 12, 45, 75 is 3

2. What is the HCF of two consecutive

(a) numbers?

(b) even numbers?

(c) odd numbers?

Solutions:

(a) The HCF of two consecutive numbers is 1

Example: The HCF of 2 and 3 is 1

(b) The HCF of two consecutive even numbers is 2

Example: The HCF of 2 and 4 is 2

(c) The HCF of two consecutive odd numbers is 1

Example: The HCF of 3 and 5 is 1

3. HCF of co-prime numbers 4 and 15 was found as follows by factorisation:

$4 = 2 \times 2$ and $15 = 3 \times 5$ since there is no common prime factor, so HCF of 4 and 15 is 0. Is the answer correct? If not, what is the correct HCF?

Solutions:

No. The answer is not correct. The correct answer is 1.