

Exercise 10 (D)

1. Find the HCF of the following:

(a) 8 and 16

Factors of 8 = ①, ②, ④, ⑧

Factors of 16 = ①, ②, ④, ⑧, 16

So, the HCF of 8 and 16 is 8.

(b) 12 and 24

Factors of 12 = ①, ②, ③, ④, ⑥, 12

Factors of 24 = ①, ②, ③, ④, ⑥, ⑧, 12, 24

So, the HCF of 12 and 24 is 12.

(c) 24 and 36,

Factors of 24 = ①, ②, ③, ④, ⑥, ⑧, 12, 24

Factors of 36 = ①, ②, ③, ④, ⑥, 9, 12, 18, 36

So, the HCF of 24 and 36 is 12.

(d) 5 and 10

Factors of 5 = ①, ⑤

Factors of 10 = 1, 2, ⑤, 10

So, the HCF of 5 and 10 is 5.

~~(e) Factors of 15 = ①, ③, ⑤, ⑬~~
~~Factors of~~

(e) 15 and 30.

Factors of 15 = ①, ③, ⑤, ⑬

Factors of 30 = ①, ②, ③, ⑤, 6, 10, ⑬, 30

So, the HCF of 15 and 30 is 15.

(f) 4 and 6.

Factors of 4 = ①, ②, 4

Factors of 6 = ①, ②, 3, 6

So, the HCF of 4 and 6 is 2.

(g) 54 and 72

Factors of 54 = ①, ②, ③, ⑥, ⑨, ⑱, 26, 27, 54

Factors of 72 = ①, ②, ③, 4, ⑥, ⑨, 12, ⑱, 24,
36, 72

So, the HCF of 54 and 72 is 18

(h) ~~Factors of 56 and 70~~

Factors of 56 = ①, ②, 4, ⑦, 8, ⑭, 56

Factors of 70 = ①, ②, 5, ⑦, 10, ⑭, 35, 70

So, the HCF of 56 and 70 is 14.

(i) 23 and 25

Factors of 23 = ①, 23

Factors of 25 = ①, 5, 25

So, the HCF of 23 and 25 is 1.

(j) 42 and 56

Factors of 42 = ①, ②, 3, 6, 7, ⑭, 21, 42

Factors of 56 = ①, ②, 4, 7, 8, ⑭, 28, 56

So, the HCF of 56 and 42 is 14.

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24.08.21

Prime factorization

August
Tuesday

Exercise 10 (D)

2. Find the HCF of the following by prime factorization method:

(a) 8 and 12

2	8
2	4

3	12
3	6
	3

8 = 2 × 2 × 2
12 = 2 × 2 × 3

HCF = 0

(b) 124, 168 and 210

2	124
2	62
	31

$$96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$$

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

$$108 = 2 \times 2 \times 3 \times 3 \times 3$$

$$\text{HCF} = 2 \times 2 = 4$$

(d) 7 and 98

7	7	98
	7	14
		2

$$7 = 7$$

$$98 = 7 \times 7 \times 2$$

$$\text{HCF} = 7$$

(e) 108 and 144

2	108	2	144
2	54	2	72
3	27	3	36
3	9	3	12
	3	2	4
			2

$$108 = 2 \times 2 \times 3 \times 3 \times 3$$
$$144 = 2 \times 2 \times 3 \times 3 \times 2 \times 2$$

$$\text{HCF} = 2 \times 2 \times 3 \times 3 = 36$$

(f) 40, 56 and 98.

2		40		2		56
2		20		5		
2		10				5
		5				

2		56		2		98
7		28		7		49
2		4				7
		2				

$$14 = 2 \times 7$$
$$56 = 2 \times 7 \times 2 \times 2$$
$$98 = 2 \times 7 \times 7$$

$$\text{HCF} = 2 \times 7 = 14$$

(g) 14, 56 and 98

$$\begin{array}{r|l} 3 & 14 \\ & 7 \end{array}$$

$$\begin{array}{r|l} 2 & 56 \\ & 28 \\ & 14 \\ & 7 \end{array}$$

$$\begin{array}{r|l} 2 & 98 \\ & 49 \\ & 7 \end{array}$$

$$\begin{array}{r|l} 2 & 14 \\ & 7 \end{array}$$

$$\begin{array}{r|l} 2 & 14 \\ & 7 \end{array}$$

14 = 2 x 7

56 = 2 x 2 x 2 x 7

98 = 2 x 7 x 7

HCF = 2 x 7 = 14

(h) 16, 48

~~16, 48~~

$$\begin{array}{r|l} 2 & 16, 48 \\ & 8, 24 \\ & 4, 12 \\ & 2, 6 \\ & 1, 3 \end{array}$$

16, 48 = 2 x 2 x 2 x 2 = 16

(i) 15, 20

$$\begin{array}{r|l} 5 & 15, 20 \\ & 3, 4 \end{array}$$

$$15, 20 = 5$$

$$\text{HCF} = 5$$

(j) 112, 210 and 260

$$\begin{array}{r|l} 2 & 112, 210, 260 \\ \hline & 56, 105, 130 \end{array}$$

$$112, 210, 260 = 2$$

$$\text{HCF} = 2$$

2	168	2	210
2	84	3	105
2	42	5	35
3	21		7
	7		

$$124 = 2 \times 2 \times 31$$

$$168 = 2 \times 2 \times 2 \times 3 \times 7$$

$$210 = 2 \times 3 \times 5 \times 7$$

$$\text{HCF} = 2$$

(C) 96, 112 and 168.

2	96	2	112
2	48	2	56
2	24	2	28
2	12	2	14
2	6		7
	3		

2	168
2	84
3	28
3	9
	3