



Memo: Highest Common Factor (HCF)

Using Prime factorisation method, find the HCF of the following numbers.

1. HCF (30; 36)

2	30
3	15
5	5
	1

2	36
2	18
3	9
3	3
	1

$$3 = 2 \times 3 \times 5 \checkmark$$

$$9 = 2 \times 2 \times 3 \times 3 \checkmark$$

$$\text{HCF (3; 9)} = 2 \times 3 = 6 \checkmark$$

$$\frac{30 \div 6 \checkmark}{36 \div 6 \checkmark} = \frac{5 \checkmark}{6 \checkmark}$$

2. HCF (24; 32)

2	24
2	12
2	6
3	3
	1

2	32
2	16
2	8
2	4
2	2
	1

$$24 = 2 \times 2 \times 2 \times 3 \checkmark$$

$$32 = 2 \times 2 \times 2 \times 2 \times 2 \checkmark$$

$$\text{HCF (24; 32)} = 2 \times 2 \times 2 = 8 \checkmark$$

$$\frac{24 \div 8 \checkmark}{32 \div 8 \checkmark} = \frac{3 \checkmark}{4 \checkmark}$$

3. HCF (30; 42)

2	30
3	15
5	5
	1

2	42
3	21
7	7
	1

$$5 = 2 \times 3 \times 5 \checkmark$$

$$7 = 2 \times 3 \times 7 \checkmark$$

$$\text{HCF (30; 42)} = 2 \times 3 = 6 \checkmark$$

$$\frac{30 \div 6 \checkmark}{42 \div 6 \checkmark} = \frac{5 \checkmark}{7 \checkmark}$$

4. HCF (27; 33)

3	27
3	9
3	3
	1

3	33
11	11
	1

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

$$33 = 3 \times 11 \checkmark$$

$$\text{HCF (27; 33)} = 3 \checkmark$$

$$\frac{27 \div 3 \checkmark}{33 \div 3 \checkmark} = \frac{9 \checkmark}{11 \checkmark}$$

5. HCF (30; 50)

2	30
3	15
5	5
	1

2	50
5	25
5	5
	1

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

$$50 = 2 \times 5 \times 5 \checkmark$$

$$\text{HCF (30; 50)} = 2 \times 5 = 10 \checkmark$$

$$\frac{30 \div 10 \checkmark}{50 \div 10 \checkmark} = \frac{3 \checkmark}{5 \checkmark}$$

6. HCF (12; 16)

2	12
2	6
3	3
	1

2	16
2	8
2	4
2	2
	1

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

$$16 = 2 \times 2 \times 2 \times 2 \checkmark$$

$$\text{HCF (12; 16)} = 2 \times 2 = 4 \checkmark$$

$$\frac{12 \div 4 \checkmark}{16 \div 4 \checkmark} = \frac{3 \checkmark}{4 \checkmark}$$

7. HCF (18; 32)

2	18
3	9
3	3
	1

2	32
2	16
2	8
2	4
2	2
	1

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

$$32 = 2 \times 2 \times 2 \times 2 \times 2 \checkmark$$

$$\text{HCF (18; 32)} = 2 \checkmark$$

$$\frac{18 \div 2 \checkmark}{32 \div 2 \checkmark} = \frac{9 \checkmark}{16 \checkmark}$$

8. HCF (15; 26)

3	15
5	5
	1

2	26
13	13
	1

$$15 = 3 \times 5 \checkmark$$

$$26 = 2 \times 13 \checkmark$$

$$\text{HCF (15; 26)} = 1 \checkmark$$

$$\frac{15 \div 1 \checkmark}{26 \div 1 \checkmark} = \frac{15 \checkmark}{26 \checkmark}$$

9. HCF (12; 120)

2	12
2	6
3	3
	1

2	120
2	60
2	30
3	15
5	5
	1

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

$$120 = 2 \times 2 \times 2 \times 3 \times 5 \checkmark$$

$$\text{HCF (12; 120)} = 2 \times 2 \times 3 = 12 \checkmark$$

$$\frac{12 \div 12 \checkmark}{120 \div 12 \checkmark} = \frac{1}{10} \checkmark$$

10. HCF (72; 80)

2	72
2	36
2	18
3	9
3	3
	1

2	80
2	40
2	20
2	10
5	5
	1

$$72 = 2 \times 2 \times 2 \times 3 \times 3 \checkmark$$

$$80 = 2 \times 2 \times 2 \times 2 \times 5 \checkmark$$

$$\text{HCF (72; 80)} = 2 \times 2 \times 2 = 8 \checkmark$$

$$\frac{72 \div 8 \checkmark}{80 \div 8 \checkmark} = \frac{9}{10} \checkmark$$

11. HCF (16; 160)

2	16
2	8
2	4
2	2
	1

2	160
2	80
2	40
2	20
2	10
5	5
	1

$$105 = 2 \times 2 \times 2 \times 2 \checkmark$$

$$147 = 2 \times 2 \times 2 \times 2 \times 2 \times 5 \checkmark$$

$$\text{HCF (16; 160)} = 2 \times 2 \times 2 \times 2 = 16 \checkmark$$

$$\frac{16 \div 16 \checkmark}{160 \div 16 \checkmark} = \frac{1}{10} \checkmark$$

12. HCF (24; 124)

2	24
2	12
2	6
3	3
	1

2	124
2	62
31	31
	1

$$224 = 2 \times 2 \times 2 \times 3 \checkmark$$

$$192 = 2 \times 2 \times 31 \checkmark$$

$$\text{HCF (24; 124)} = 2 \times 2 = 4 \checkmark$$

$$\frac{24 \div 4 \checkmark}{124 \div 4 \checkmark} = \frac{6}{31} \checkmark$$

13. HCF (13; 117)

13	13
	1

3	117
3	39
13	13
	1

$$13 = 13 \checkmark$$

$$117 = 3 \times 3 \times 13 \checkmark$$

$$\text{HCF (75; 90)} = 13 \checkmark$$

$$\frac{13 \div 13 \checkmark}{117 \div 13 \checkmark} = \frac{1}{9} \checkmark$$

14. HCF (19; 342)

19	19
	1

2	342
3	171
3	57
19	19
	1

$$19 = 19 \checkmark$$

$$342 = 2 \times 3 \times 3 \times 19 \checkmark$$

$$\text{HCF (19; 342)} = 19 \checkmark$$

$$\frac{19 \div 19 \checkmark}{342 \div 19 \checkmark} = \frac{1}{18} \checkmark$$

15. HCF (350; 950)

2	350
5	175
5	35
7	7
	1

2	950
5	475
5	95
19	19
	1

$$350 = 2 \times 5 \times 5 \times 7 \checkmark$$

$$950 = 2 \times 5 \times 5 \times 19 \checkmark$$

$$\text{HCF (350; 950)} = 2 \times 5 \times 5 = 50 \checkmark$$

$$\frac{350 \div 50 \checkmark}{950 \div 50 \checkmark} = \frac{7}{19} \checkmark$$

16. HCF (99; 189)

3	99
3	33
11	11
	1

3	189
3	63
3	21
7	7
	1

$$99 = 3 \times 3 \times 11 \checkmark$$

$$189 = 3 \times 3 \times 3 \times 7 \checkmark$$

$$\text{HCF (99; 189)} = 3 \times 3 = 9 \checkmark$$

$$\frac{99 \div 9 \checkmark}{189 \div 9 \checkmark} = \frac{11}{21} \checkmark$$

17. HCF (125; 150)

5	125
5	25
5	5
	1

2	150
3	75
5	25
5	5
	1

$$125 = 5 \times 5 \times 5 \checkmark$$

$$150 = 2 \times 3 \times 5 \times 5 \checkmark$$

$$\text{HCF (125; 150)} = 5 \times 5 = 25 \checkmark$$

$$\frac{125 \div 25 \checkmark}{150 \div 25 \checkmark} = \frac{5 \checkmark}{6 \checkmark}$$

18. HCF (220; 400)

2	220
2	110
5	55
11	11
	1

2	400
2	200
2	100
2	50
5	25
5	5
	1

$$220 = 2 \times 2 \times 5 \times 11 \checkmark$$

$$400 = 2 \times 2 \times 2 \times 2 \times 5 \times 5 \checkmark$$

$$\text{HCF (220; 400)} = 2 \times 2 \times 5 = 20 \checkmark$$

$$\frac{220 \div 20 \checkmark}{400 \div 20 \checkmark} = \frac{11 \checkmark}{20 \checkmark}$$

19. HCF (35; 105)

5	35
7	7
	1

3	105
5	35
7	7
	1

$$35 = 5 \times 7 \checkmark$$

$$120 = 3 \times 5 \times 7 \checkmark$$

$$\text{HCF (35; 105)} = 5 \times 7 = 35 \checkmark$$

$$\frac{35 \div 35 \checkmark}{105 \div 35 \checkmark} = \frac{1 \checkmark}{3 \checkmark}$$

20. HCF (850; 1750)

2	850
5	425
5	85
17	17
	1

2	1750
5	875
5	175
5	35
7	7
	1

$$850 = 2 \times 5 \times 5 \times 17 \checkmark$$

$$1750 = 2 \times 5 \times 5 \times 5 \times 7 \checkmark$$

$$\text{HCF (850; 1750)} = 2 \times 5 \times 5 = 50 \checkmark$$

$$\frac{850 \div 50 \checkmark}{1750 \div 50 \checkmark} = \frac{17}{35} \checkmark$$