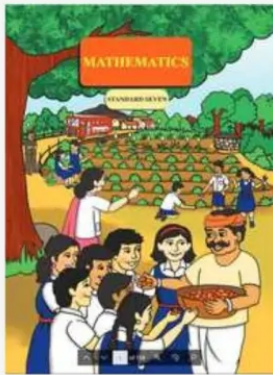


Maharashtra Board Solutions Class 7-Maths (Practice Set 14): Chapter 3- HCF and LCM

BOOK SOLUTIONS
CLASS 7
MATHS

CHAPTER 3
HCF and LCM





Maharashtra Board Solutions→

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Maharashtra Board Solutions Class 7-Maths

(Practice Set 14): Chapter 3- HCF and LCM

Class 7: Maths Chapter 3 solutions. Complete Class 7 Maths Chapter 3 Notes.

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Maharashtra Board 7th Maths Chapter 3, Class 7 Maths Chapter 3 solutions

Question 1.

Choose the right option.

i. The HCF of 120 and 150 is ____

- (A) 30
- (B) 45
- (C) 20
- (D) 120

Solution:

(A) 30

Hint:

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

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

$$\therefore \text{HCF of 120 and 150} = 2 \times 3 \times 5 = 30$$

ii. The HCF of this pair of numbers is not 1.

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- (A) 13,17
- (B) 29,20
- (C) 40, 20
- (D) 14, 15

Solution:

(C) 40, 20

Hint:

$$40 = 2 \times 2 \times 2 \times 5$$

$$20 = 2 \times 2 \times 5$$

$$\therefore \text{HCF of 40 and 20} = 2 \times 5 = 10$$

Question 2.

Find the HCF and LCM.

- i. 14,28
- ii. 32,16
- iii. 17,102,170
- iv. 23,69
- v. 21,49,84

Solution:

$$\text{i. } 14 = 2 \times 7$$

$$28 = 2 \times 14$$

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

$$\therefore \text{HCF of 14 and 28} = 2 \times 7$$

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$$= 14$$

$$\text{LCM of 14 and 28} = 2 \times 2 \times 7$$

$$= 28$$

$$\text{ii. } 32 = 2 \times 16$$

$$= 2 \times 2 \times 8$$

$$= 2 \times 2 \times 2 \times 4$$

$$= 2 \times 2 \times 2 \times 2 \times 2$$

$$16 = 2 \times 8$$

$$= 2 \times 2 \times 4$$

$$= 2 \times 2 \times 2 \times 2$$

$$\therefore \text{HCF of 32 and 16} = 2 \times 2 \times 2 \times 2$$

$$= 16$$

$$\therefore \text{LCM of 32 and 16} = 2 \times 2 \times 2 \times 2 \times 2$$

$$= 32$$

$$\text{iii. } 17 = 17 \times 1$$

$$102 = 2 \times 51$$

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

$$170 = 2 \times 85$$

$$= 2 \times 5 \times 17$$

$$\therefore \text{HCF of 17, 102 and 170} = 17$$

$$\therefore \text{LCM of 17, 102 and 170} = 17 \times 2 \times 3 \times 5$$

$$= 510$$

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iv. $23 = 23 \times 1$

$69 = 3 \times 23$

$\therefore$ HCF of 23 and 69 = 23

$\therefore$ LCM of 23 and 69 = 23×3

= 69

v. $21 = 3 \times 7$

$49 = 7 \times 7$

$84 = 2 \times 42$

= $2 \times 2 \times 21$

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

$\therefore$ HCF of 21, 49 and 84 = 7

$\therefore$ LCM of 21, 49 and 84 = $7 \times 3 \times 7 \times 2 \times 2$

= 588

Question 3.

Find the LCM.

i. 36, 42

ii. 15, 25, 30

iii. 18, 42, 48

iv. 4, 12, 20

v. 24, 40, 80, 120

Solution:

i. 36, 42

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2	36	42
3	18	21
2	6	7
	3	7

∴ LCM of 36 and 42 = $2 \times 3 \times 2 \times 3 \times 7$

= 252

ii. 15, 25, 30

5	15	25	30
3	3	5	6
	1	5	2

∴ LCM of 15, 25 and 30 = $5 \times 3 \times 5 \times 2$

= 150

iii. 18, 42, 48

2	18	42	48
3	9	21	24
2	3	7	8
2	3	7	4
	3	7	2

∴ LCM of 18, 42 and 48 = $2 \times 3 \times 2 \times 2 \times 3 \times 7 \times 2$

= 1008

iv. 4, 12, 20

2	4	12	20
2	2	6	10
	1	3	5

∴ LCM of 4, 12 and 20 = $2 \times 2 \times 3 \times 5$

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$$= 60$$

v. 24, 40, 80, 120

2	24	40	80	120
2	12	20	40	60
2	6	10	20	30
5	3	5	10	15
3	3	1	2	3
	1	1	2	1

$$\therefore \text{LCM of 24, 40, 80 and 120} = 2 \times 2 \times 2 \times 5 \times 3 \times 2$$

$$= 240$$

Question 4.

Find the smallest number which when divided by 8,9,10,15,20 gives a remainder of 5 every time.

Solution:

Here, the smallest number for division is LCM of 8, 9, 10, 15 and 20.

$$8 = 2 \times 2 \times 2$$

$$9 = 3 \times 3$$

$$10 = 2 \times 5$$

$$15 = 3 \times 5$$

$$20 = 2 \times 2 \times 5$$

$$\text{LCM of given numbers} = 2 \times 2 \times 2 \times 3 \times 3 \times 5 = 360$$

$$\therefore \text{Required, smallest number} = \text{LCM} + \text{Remainder}$$

$$= 360 + 5$$

$$= 365$$

$\therefore$ The required smallest number is 365.

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Question 5.

Reduce the fractions $\frac{348}{319}, \frac{221}{247}, \frac{437}{551}$ to the lowest terms.

Solution:

i.

$$\begin{array}{r} 319 \overline{) 348} \quad (1 \\ - 319 \\ \hline 29 \end{array} \quad \begin{array}{r} 319 \overline{) 319} \quad (11 \\ - 319 \\ \hline 0 \end{array}$$

HCF of 348 and 319 = 29

$$\frac{348}{319} = \frac{348 \div 29}{319 \div 29} = \frac{12}{11}$$

ii.

$$\begin{array}{r} 221 \overline{) 247} \quad (1 \\ - 221 \\ \hline 26 \end{array} \quad \begin{array}{r} 221 \overline{) 221} \quad (8 \\ - 208 \\ \hline 13 \end{array} \quad \begin{array}{r} 26 \overline{) 26} \quad (2 \\ - 26 \\ \hline 0 \end{array}$$

HCF of 221 and 247 = 13

$$\frac{221}{247} = \frac{221 \div 13}{247 \div 13} = \frac{17}{19}$$

iii.

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$$\begin{array}{r}
 437 \overline{) 551} \begin{array}{l} 1 \\ - 437 \\ \hline 114 \end{array} \\
 114 \overline{) 437} \begin{array}{l} 3 \\ - 342 \\ \hline 95 \end{array} \\
 95 \overline{) 114} \begin{array}{l} 1 \\ - 95 \\ \hline 19 \end{array} \\
 19 \overline{) 95} \begin{array}{l} 5 \\ - 95 \\ \hline 0 \end{array}
 \end{array}$$

HCF of 437 and 551 = 19

$$\frac{437}{551} = \frac{437 \div 19}{551 \div 19} = \frac{23}{29}$$

Question 6.

The LCM and HCF of two numbers are 432 and 72 respectively. If one of the numbers is 216, what is the other?

Solution:

Here, LCM = 432, HCF = 72, First number = 216

First number x Second number = LCM x HCF

$$\therefore 216 \times \text{Second number} = 432 \times 72$$

$$\therefore \text{Second number} = \frac{432 \times 72}{216} = 432 \div 2 = 216$$

$\therefore$ The other number is 144.

Question 7.

The product of two two-digit numbers is 765 and their HCF is 3. What is their LCM?

Solution:

Here, HCF = 3, Product of the given numbers = 765

Now, HCF x LCM = Product of the given numbers

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$$\therefore 3 \times \text{LCM} = 765$$

$$\therefore \text{LCM} = 765 \div 3 = 255$$

$\therefore$ The LCM of the two two-digit numbers is 255.

Question 8.

A trader has three bundles of string 392 m, 308 m and 490 m long. What is the greatest length of string that the bundles can be cut up into without any left over string?

Solution:

The required greatest length of the string is the highest common factor (HCF) of 392, 308 and 490.

$$\therefore 392 = 2 \times 2 \times 2 \times 7 \times 7$$

$$308 = 2 \times 2 \times 7 \times 11$$

$$490 = 2 \times 7 \times 7 \times 5$$

$$\therefore \text{HCF of } 392, 308 \text{ and } 490 = 2 \times 7$$

$$= 14$$

$\therefore$ The required greatest length of the string is 14 m.

2	392	308	490
7	196	154	245
	28	22	35

Question 9.

Which two consecutive even numbers have an LCM of 180?

Solution:

LCM of two consecutive even numbers = 180

But, HCF of two consecutive even numbers = 2

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Now, product of the given number = HCF x LCM

$$= 2 \times 180$$

$$= 360$$

To find the two consecutive even numbers, we have to factorize 360.

$$360 = 2 \times 2 \times 2 \times 3 \times 3 \times 5$$

$$360 = (2 \times 3 \times 3) \times (2 \times 2 \times 5)$$

$$= 18 \times 20$$

$\therefore$ The two consecutive even numbers whose LCM is 180 are 18 and 20.



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The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

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