HCF and LCM with Venn diagrams

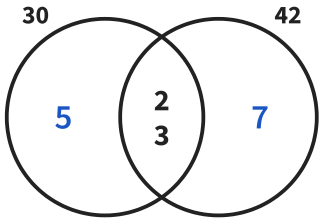
ANSWERS

1

Find the HCF and LCM of 30 and 42.

30 = 2 × 3 × 5

42 = 2 × 3 × 7



HCF: 2 × 3 = 6

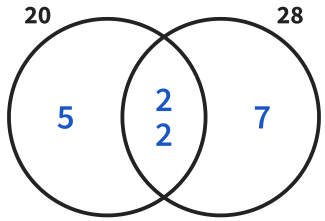
LCM: 2 × 3 × 5 × 7 = 210

2

Find the HCF and LCM of 20 and 28.

20 = 2 × 2 × 5

28 = 2 × 2 × 7



HCF: 2 × 2 = 4

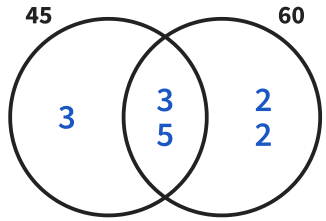
LCM: 2 × 2 × 5 × 7 = 140

3

Find the HCF and LCM of 45 and 60.

45 = 3 × 3 × 5

60 = 2 × 2 × 3 × 5



HCF: 3 × 5 = 15

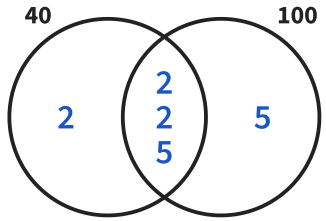
LCM: 2 × 2 × 3 × 3 × 5 = 180

4

Find the HCF and LCM of 40 and 100.

40 = 2 × 2 × 2 × 5

100 = 2 × 2 × 5 × 5



HCF: 2 × 2 × 5 = 20

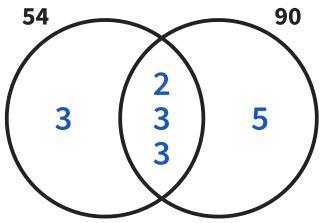
LCM: 2 × 2 × 2 × 5 × 5 = 200

5

Write 54 and 90 as products of primes. Then find their HCF and LCM.

54 = 2 × 3 × 3 × 3

90 = 2 × 3 × 3 × 5



HCF: 2 × 3 × 3 = 18

LCM: 2 × 3 × 3 × 3 × 5 = 270

6

List the factors of 16 and of 20, and write down the HCF. Then list the first five multiples of each, and write down the LCM.

Factors of 16: 1, 2, 4, 8, 16

Factors of 20: 1, 2, 4, 5, 10, 20

HCF: 4

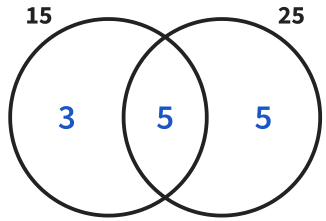
Multiples of 16: 16, 32, 48, 64, 80

Multiples of 20: 20, 40, 60, 80, 100

LCM: 80

7

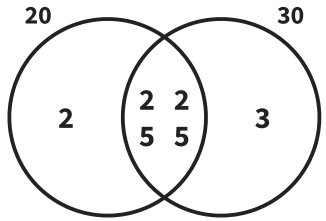
Two stage lights flash together as a show starts. One flashes every 15 seconds, the other every 25 seconds. After how many seconds do they next flash together?



Answer: 75 seconds

8

Ravi writes 20 = 2 × 2 × 5 and 30 = 2 × 3 × 5. He draws this Venn diagram and says the HCF is 100. Explain his mistake. What is the HCF?



Mistake: 2 and 5 put in twice

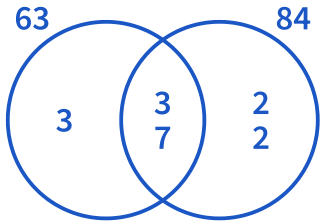
HCF: 2 × 5 = 10

HCF and LCM with Venn diagrams *further practice*

ANSWERS

9

Find the HCF and LCM of 63 and 84.

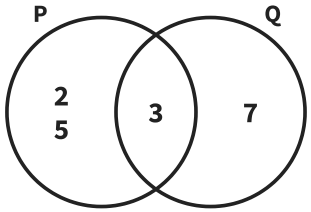


HCF: 3 × 7 = 21

LCM: 2 × 2 × 3 × 3 × 7 = 252

10

The Venn diagram shows the prime factors of two numbers, P and Q. Work out P, Q and the HCF of P and Q.



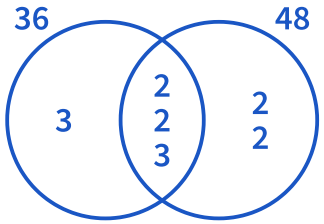
P: 2 × 5 × 3 = 30

Q: 3 × 7 = 21

HCF: 3

11

A café has 36 croissants and 48 muffins. It puts them on plates, every plate the same, with nothing left over. What is the greatest number of plates it can use?

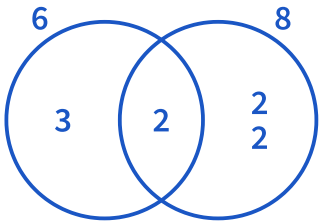


the HCF of 36 and 48

Answer: 12 plates

12

Asha runs a lap in 6 minutes and Ben runs a lap in 8 minutes. They set off together from the start line at 10:15. At what time are they next at the start line together?



the LCM of 6 and 8 is 24 minutes

Answer: 10:39

13

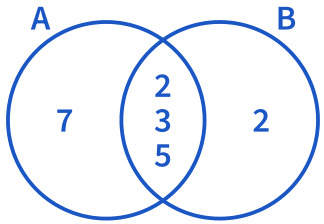
Which is bigger: the LCM of 12 and 30, or the LCM of 14 and 21?
Show how you know.

60 and 42

Answer: the LCM of 12 and 30

14

A = 2 × 3 × 5 × 7 and B = 2 × 2 × 3 × 5.
Find the HCF and the LCM of A and B.

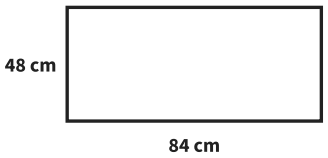


HCF: 2 × 3 × 5 = 30

LCM: 2 × 2 × 3 × 5 × 7 = 420

15

This rectangle is covered exactly with square tiles, all the same size, with none cut. What is the largest side length the tiles can have?



the HCF of 48 and 84

Answer: 12 cm

16

Tom says the HCF of two different numbers can never be one of the numbers.
Is Tom right? Explain.

6 is a factor of 18 and of itself

Answer: No: the HCF of 6 and 18 is 6