Interleaved: HCF and LCM

ANSWERS

1

Priya has 24 tulip bulbs and 36 daffodil bulbs. She plants them in rows. Every row has the same number of bulbs and only one kind of bulb. What is the greatest number of bulbs she can put in each row?

Which method? HCF | LCM | HCF, then divide | LCM, then divide

$24 = 2^3 \times 3$, $36 = 2^2 \times 3^2$, HCF $= 2^2 \times 3 = 12$

Answer 12 bulbs

2

A drummer hits a cymbal every 6 beats and a gong every 8 beats. They are hit together at the start of a song. After how many beats are they next hit together?

Which method? HCF | LCM | HCF, then divide | LCM, then divide

multiples of 8: 8, 16, 24; 24 is a multiple of 6

Answer 24 beats

3

Plant pots are sold in packs of 12. Saucers for the pots are sold in packs of 20. Kim wants exactly the same number of pots and saucers. What is the smallest number of packs of pots she can buy?

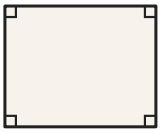
Which method? HCF | LCM | HCF, then divide | LCM, then divide

LCM = 60 pots, 60 ÷ 12 = 5

Answer 5 packs

4

A tray of fudge is a rectangle 30 cm by 24 cm. It is cut into squares, all the same size, with none left over. What is the largest side length the squares could have?



Which method? HCF | LCM | HCF, then divide | LCM, then divide

$30 = 2 \times 3 \times 5$, $24 = 2^3 \times 3$, HCF $= 2 \times 3$

Answer 6 cm

5

A school takes 84 Year 7s and 90 Year 8s on a trip. They are put into groups of the same size, as large as possible, and each group is from one year. How many groups are there? $84 = 2^2 \times 3 \times 7$ and $90 = 2 \times 3^2 \times 5$.

Which method? HCF | LCM | HCF, then divide | LCM, then divide

HCF $= 2 \times 3 = 6$, $84 \div 6 + 90 \div 6 = 14 + 15$

Answer 29 groups

6

Lena waters her ivy every 4 days, her palm every 6 days and her cactus every 10 days. She waters all three today. In how many days will she next water all three on the same day?

Which method? HCF | LCM | HCF, then divide | LCM, then divide

the first multiple of 10 that is also a multiple of 4 and of 6

Answer 60 days

7

Ella makes identical party bags from 40 balloons, 32 stickers and 24 sweets, using every one of them. She makes as many bags as she can. How many stickers go in each bag?

Which method? HCF | LCM | HCF, then divide | LCM, then divide

HCF $= 8$ bags, $32 \div 8 = 4$

Answer 4 stickers

8

Two cogs turn together. Cog A has 18 teeth and cog B has 24 teeth. They start with a mark on each one lined up. How many full turns does cog A make before the marks line up again?

Which method? HCF | LCM | HCF, then divide | LCM, then divide

LCM $= 72$ teeth, $72 \div 18 = 4$

Answer 4 turns

Interleaved: HCF and LCM *further practice*

ANSWERS

9

Mia goes to the library every 6 days and Tom every 9 days. They are both there today. In how many days will they next both be there on the same day?

multiples of 9: 9, 18; 18 is a multiple of 6

Answer 18 days

10

Two ropes are 84 m and 126 m long. Both are cut into pieces that are all the same length, as long as possible, with none left over. How many pieces are there altogether?

HCF $= 42$ m, $84 \div 42 + 126 \div 42 = 2 + 3$

Answer 5 pieces

11

$A = 2^3 \times 3^2 \times 5$ and $B = 2^2 \times 3 \times 7$.
Find the highest common factor of A and B.

the primes in both, lowest powers: $2^2 \times 3$

Answer 12

12

Napkins are sold in packs of 30 and paper plates in packs of 45. Sam wants exactly the same number of napkins and plates, with as few packs as possible.
How many packs of each does he buy?

LCM $= 90$, $90 \div 30 = 3$, $90 \div 45 = 2$

Answer napkins 3, plates 2

13

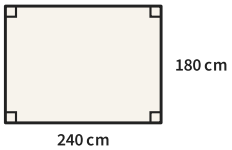
One alarm beeps every 15 minutes and another every 25 minutes. Both beep at 9:00 am. When do they next beep at the same time?

LCM $= 75$ minutes after 9:00 am

Answer 10:15 am

14

A wall 240 cm wide and 180 cm high is covered with square tiles, all the same size, as large as possible, with no cutting.
How many tiles are needed?



HCF $= 60$ cm, 4 tiles across × 3 tiles up

Answer 12 tiles

15

Three fairground rides start together at 2:00 pm. One starts again every 8 minutes, one every 12 minutes and one every 20 minutes. When do all three next start together?

LCM $= 120$ minutes after 2:00 pm

Answer 4:00 pm

16

Kai says the highest common factor of 12 and 18 is 36. Explain his mistake and find the highest common factor.

36 is a multiple of both (the LCM); the HCF is a factor of both

Answer 6