Prime Factors, HCF and LCM

Year 10–11 Maths · Years 10–11 · NCEA Level 1 · About 20 minutes · 8 questions

Name _____ Date _____ Score / 8

WHAT YOU WILL PRACTISE

- Write a number as a product of its prime factors
- Find the highest common factor (HCF) of two numbers
- Find the lowest common multiple (LCM) of two numbers

WORKED EXAMPLE

Find the HCF and the LCM of 12 and 20.

1. Write each number as a product of primes: $12 = 2^2 \times 3$ and $20 = 2^2 \times 5$.
2. For the HCF, take the primes they share: $2^2 = 4$.
3. For the LCM, take every prime with its highest power: $2^2 \times 3 \times 5 = 60$.

Answer: HCF = 4, LCM = 60

Questions

Show your working in the space under each question.

1. Write 36 as a product of its prime factors

2. Write 60 as a product of its prime factors

3. Write 84 as a product of its prime factors

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4. Find the highest common factor (HCF) of 18 and 24

5. Find the lowest common multiple (LCM) of 6 and 8

6. Find the HCF of 36 and 60

7. Find the LCM of 12 and 18

8. Bus A leaves the station every 12 minutes and bus B leaves every 15 minutes. Both leave at 9:00 am. At what time do they next leave together?

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Answers: Prime Factors, HCF and LCM

Mark your own work, then go back to any question you got wrong before reading the tutor tip.

Q	QUESTION	ANSWER
1	Write 36 as a product of its prime factors	**$2^2 \times 3^2$**
2	Write 60 as a product of its prime factors	**$2^2 \times 3 \times 5$**
3	Write 84 as a product of its prime factors	**$2^2 \times 3 \times 7$**
4	Find the highest common factor (HCF) of 18 and 24	**6**
5	Find the lowest common multiple (LCM) of 6 and 8	**24**
6	Find the HCF of 36 and 60	**12**
7	Find the LCM of 12 and 18	**36**
8	Bus A leaves the station every 12 minutes and bus B leaves every 15 minutes. Both leave at 9:00 am. At what time do they next leave together?	**10:00 am (after 60 minutes)**

TUTOR TIP

The HCF uses only the primes the numbers share. The LCM uses every prime, taking the highest power of each.

Stuck on a question? Work through it live with a tutor.

YFCampus offers one-to-one online Maths tutoring matched to your school curriculum. Book a free trial class at **www.yfcampus.com/nz**

Written for students aged 13 to 16 and suitable for Years 10–11. Check your school’s curriculum for the exact order of topics. YFCampus is independent and is not affiliated with any exam board or education ministry.