

Word Problems on HCF and LCM

Unit: Playing with Numbers - Student Practice Worksheet

Overview: Two ropes, 24 metres and 36 metres long, need to be cut into equal pieces of the greatest possible length, with nothing left over. Kabir wanted to know: is this an HCF problem or an LCM problem? He couldn't tell just from the numbers. Anaya taught him a trick: look at the WORDS, not the numbers, to decide which tool to reach for.

Practice Questions (30 Total)

Section A - Easy

Q1. The teal panel is 'split / greatest'. Which tool is that?

split / greatest

together again

- ☐ A. HCF
- ☐ B. LCM
- ☐ C. Addition
- ☐ D. Subtraction

Q2. Which tool do you use for 'when will two repeating events happen together again'?

- ☐ A. HCF
- ☐ B. LCM
- ☐ C. Subtraction
- ☐ D. Multiplication only

Q3. 24m and 36m ropes are cut into equal pieces with none wasted, fewest pieces. What length is each piece?

- ☐ A. 6m
- ☐ B. 18m
- ☐ C. 12m
- ☐ D. 24m

Q4. The two bars are 20 and 30, both splitting into 10s. What is the fewest identical bouquet size?



both split into 10s

- ☐ A. 5
- ☐ B. 10
- ☐ C. 15
- ☐ D. 20

Q5. Which word signals an HCF problem?

- ☐ A. Greatest
- ☐ B. Repeat
- ☐ C. Together again
- ☐ D. Next time

Q6. Two lighthouses flash every 15s and 20s together now. When next together?

- ☐ A. 35 seconds
- ☐ B. 45 seconds
- ☐ C. 300 seconds
- ☐ D. 60 seconds

Q7. Two ropes must be cut into equal pieces with none left. Which tool?



cut equal, none left

- ☐ A. LCM
- ☐ B. Neither
- ☐ C. Both equally
- ☐ D. HCF

Q8. Which word signals an LCM problem?

- ☐ A. Largest
- ☐ B. Together again

- ☐ C. Fewest groups
- ☐ D. Maximum size

Q9. 18 cupcakes and 30 cookies in identical trays, fewest trays, nothing left over. How many items per tray?

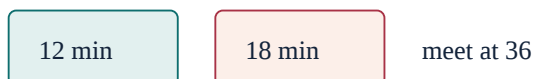
- ☐ A. 3
- ☐ B. 9
- ☐ C. 6
- ☐ D. 18

Q10. Two buses on repeating schedules meet again. Which tool, and why those clue words?

- ☐ A. LCM
- ☐ B. HCF
- ☐ C. Neither
- ☐ D. Both equally

Section B - Medium

Q11. The cards are 12 min and 18 min clocks that meet at 36. When do they next chime together?



- ☐ A. 36 minutes
- ☐ B. 24 minutes
- ☐ C. 30 minutes
- ☐ D. 216 minutes

Q12. Kabir must decide: 'arrange books on shelves of equal size, fewest shelves' — HCF or LCM?

- ☐ A. HCF
- ☐ B. LCM
- ☐ C. Addition
- ☐ D. Division only, no HCF or LCM needed

Q13. A shop has 45 pens and 60 pencils, packed into identical boxes, fewest boxes, nothing left over. How many items per box?

- ☐ A. 5
- ☐ B. 15
- ☐ C. 45
- ☐ D. 3

Q14. Cans of 84 L and 126 L, largest equal pour. How many litres per container?



- ☐ A. 21 litres
- ☐ B. 63 litres
- ☐ C. 84 litres
- ☐ D. 42 litres

Q15. Which phrase best matches an LCM word problem?

- ☐ A. Two events next happening at the same time
- ☐ B. Largest equal groups with nothing wasted
- ☐ C. Fewest identical boxes
- ☐ D. Biggest size that divides evenly

Q16. Three friends visit the library every 4, 6, and 9 days, all visiting today. When do all three next visit together?

- ☐ A. 18 days
- ☐ B. 24 days
- ☐ C. 36 days
- ☐ D. 216 days

Q17. The lists share 30 first. When do 10-min and 15-min bells next ring together?

10: 10 20 30

15: 15 30

- ☐ A. 5 minutes

- ☐ B. 25 minutes
- ☐ C. 150 minutes
- ☐ D. 30 minutes

Q18. Two trains leave a station every 8 and 12 minutes together. When do they next leave together?

- ☐ A. 20 minutes
- ☐ B. 24 minutes
- ☐ C. 96 minutes
- ☐ D. 4 minutes

Q19. Anaya has 36 red beads and 48 blue beads, to make identical bracelets, fewest bracelets, no beads left over. Beads per bracelet?

- ☐ A. 6
- ☐ B. 24
- ☐ C. 12
- ☐ D. 36

Q20. 72 and 90 items, fewest identical packs. Name the tool and the pack size.

- ☐ A. 9
- ☐ B. 18
- ☐ C. 36
- ☐ D. 72

Section C - Challenge

Q21. The lower bar (a supposed 'piece') is longer than the ribbon. What went wrong?



- ☐ A. He gets a piece length bigger than the ribbon itself, which is impossible
- ☐ B. Nothing goes wrong, both give the same answer
- ☐ C. The ribbon becomes exactly twice as long
- ☐ D. LCM always gives a smaller, still-valid answer here

Q22. Why does a 'largest equal grouping, nothing left over' problem always use HCF and never LCM?

- ☐ **A.** Because the group size must divide every quantity exactly, which is what HCF finds
- ☐ **B.** Because HCF is always the bigger of the two answers
- ☐ **C.** There is no real reason, either tool works
- ☐ **D.** Because LCM problems never involve grouping

Q23. A rectangular field 96m by 144m is to be divided into the largest possible identical square plots. What is each plot's side length?

- ☐ **A.** 16m
- ☐ **B.** 24m
- ☐ **C.** 48m
- ☐ **D.** 96m

Q24. One story asks both 'split size' and 'next together'. How should you choose tools?

Q1 split size?

Q2 next together?

- ☐ **A.** Always default to HCF regardless of wording
- ☐ **B.** Always default to LCM regardless of wording
- ☐ **C.** Add both numbers together and ignore the wording
- ☐ **D.** Identify which specific question is being asked and match HCF or LCM to that part

Q25. Why does a 'repeating cycles meeting again' problem always use LCM and never HCF?

- ☐ **A.** Because LCM is always the smaller answer
- ☐ **B.** Because the meeting time must be a multiple of every cycle length, which is what LCM finds
- ☐ **C.** There is no real reason, either tool works
- ☐ **D.** Because HCF cannot handle time at all

Q26. Two wires 60m and 84m are to be cut into equal pieces, largest possible size, no waste. How many total pieces result?

- ☐ **A.** 60 pieces
- ☐ **B.** 2 pieces total

- ☐ C. 5 pieces + 7 pieces = 12 pieces
- ☐ D. 144 pieces

Q27. Three cycles 6, 10 and 15 meet at 30. Which tool finds that full repeat?



- ☐ A. HCF of 6, 10, 15
- ☐ B. Sum of 6, 10, 15
- ☐ C. Average of 6, 10, 15
- ☐ D. LCM of 6, 10, 15

Q28. A problem gives two numbers and asks for 'the smallest number exactly divisible by both.' Which tool and why?

- ☐ A. HCF — factors are what's divisible
- ☐ B. LCM — it is defined as the smallest shared multiple
- ☐ C. Neither tool applies here
- ☐ D. Addition of the two numbers

Q29. Anaya solves a grouping problem and gets an answer LARGER than one of the original quantities. What does this tell her?

- ☐ A. She likely used LCM by mistake instead of HCF
- ☐ B. Her answer is definitely correct
- ☐ C. The original numbers must be wrong
- ☐ D. Grouping problems always give large answers

Q30. Why do the words 'greatest equal split' versus 'together again' pick HCF or LCM before you even compute?

- ☐ A. It isn't useful, the vocabulary is random
- ☐ B. The vocabulary itself becomes a reliable clue for choosing the right method
- ☐ C. Because HCF problems never appear in real life
- ☐ D. Because LCM problems never involve numbers at all

Answer Key

- Q1:** (A) (a) HCF — for largest equal splitting.
- Q2:** (B) (b) LCM — for repeating events meeting again.
- Q3:** (C) (c) 12m — the HCF of 24 and 36.
- Q4:** (B) (b) 10 — the HCF of 20 and 30.
- Q5:** (A) (a) Greatest — signals a largest-shared-size problem, HCF.
- Q6:** (D) (d) 60 seconds — the LCM of 15 and 20.
- Q7:** (D) (d) HCF — cutting into biggest equal pieces is a splitting problem.
- Q8:** (B) (b) Together again — signals a repeating-cycle problem, LCM.
- Q9:** (C) (c) 6 — the HCF of 18 and 30.
- Q10:** (A) (a) LCM — a repeating schedule meeting again.
- Q11:** (A) (a) 36 minutes — the LCM of 12 and 18.
- Q12:** (A) (a) HCF — arranging into equal groups, fewest shelves, is a splitting problem.
- Q13:** (B) (b) 15 — the HCF of 45 and 60.
- Q14:** (D) (d) 42 litres — the HCF of 84 and 126.
- Q15:** (A) (a) Two events next happening at the same time — the classic LCM scenario.
- Q16:** (C) (c) 36 days — the LCM of 4, 6, and 9.
- Q17:** (D) (d) 30 minutes — the LCM of 10 and 15.
- Q18:** (B) (b) 24 minutes — the LCM of 8 and 12.
- Q19:** (C) (c) 12 — the HCF of 36 and 48.
- Q20:** (B) (b) 18 — the HCF of 72 and 90.
- Q21:** (A) (a) He gets a piece length bigger than the ribbon itself, which is impossible — LCM values are always at least as large as the bigger input, the wrong direction for a cutting problem.
- Q22:** (A) (a) Because the group size must divide every quantity exactly, which is precisely what HCF finds — the largest number dividing all amounts.
- Q23:** (C) (c) 48m — the HCF of 96 and 144, the largest square side that divides both dimensions exactly.
- Q24:** (D) (d) Identify which specific question is being asked and match HCF or LCM to that part — a single word problem can even need both tools for different sub-questions.
- Q25:** (B) (b) Because the meeting time must be a multiple of every cycle length, which is precisely what LCM finds — the smallest shared multiple.
- Q26:** (C) (c) 5 pieces + 7 pieces = 12 pieces. $\text{HCF}(60,84)=12$, so $60/12=5$ pieces from the first wire, $84/12=7$ from the second, 12 pieces total.
- Q27:** (D) (d) LCM of 6, 10, 15 — the pattern fully repeats at the smallest shared multiple of all three cycles, which is 30 seconds.

Q28: (B) (b) LCM — it is defined as the smallest number that is a multiple of (exactly divisible by) both given numbers.

Q29: (A) (a) She likely used LCM by mistake instead of HCF — a valid group size for splitting a quantity can never exceed that quantity itself.

Q30: (B) (b) The vocabulary itself becomes a reliable clue for choosing the right method — spotting 'splitting/greatest' versus 'repeating/together again' shortcuts the whole decision.

You've got this! Keep learning and shining! - Ruchi Math Coaching