



GCF & LCM

GRADE 6 MATH

Answer keys for the exit ticket, practice worksheet, and homework, plus notes for the lesson slides. Each answer shows the steps and the most likely wrong answer (“If wrong”), so you can tell what a mistake means, not just that it is one. Questions go from **fluency** to **application** to **reasoning**.

Exit Ticket — answer key

Use: End of the GCF/LCM lesson. 5–8 min, independent.

Timing: 5–8 min · independent. Item 4 is the decision item — which tool, and why. That choice is the real skill.

1. GCF of 12 and 18? **FLUENCY**

Answer: **6**

1. Factors of 12: 1, 2, 3, 4, 6, 12.
2. Factors of 18: 1, 2, 3, 6, 9, 18.
3. Greatest shared factor: 6.

If wrong: Answered 3 — stopped at a common factor without checking for a larger one. Or answered 36 (that’s the LCM).

2. LCM of 4 and 6? **FLUENCY**

Answer: **12**

1. Multiples of 4: 4, 8, 12, 16...
2. Multiples of 6: 6, 12, 18...
3. First shared multiple: 12.

If wrong: Answered 24 (used 4×6 without reducing) or 2 (that’s the GCF).

3. GCF of 24 and 36? **APPLICATION**

Answer: **12**

1. Factors of 24: 1, 2, 3, 4, 6, 8, 12, 24. Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36.
2. Greatest shared: 12.

If wrong: Answered 6 — a real common factor, but not the greatest. List all the way up.

4. Buses every 6 and 8 min — next together? GCF or LCM? REASONING

Answer: **24 minutes — LCM, because we need a time both cycles land on**

1. Multiples of 6: 6,12,18,24. Multiples of 8: 8,16,24.
2. First shared: 24 minutes.
3. LCM, because we are looking for a shared point in the FUTURE — events lining up, not splitting things into groups.

If wrong: Used GCF (2 minutes) — GCF answers ‘how do I split into equal groups?’, LCM answers ‘when do cycles meet again?’

Quick answers for fast checking:

#	Level	Answer
1	fluency	6
2	fluency	12
3	application	12
4	reasoning	24 min (LCM)

Practice Worksheet — answer key

Use: During the lesson after the mini-lesson/deck. Items 7–8 are the matched pair — same skill, opposite tools. Teach the decision, not just the procedure.

Timing: 15–25 min · pairs or independent · circulate on 7–9. Items 1–3 fluency, 4–6 application, 7–9 reasoning. If a student can compute both but picks wrong in 7/8, that is the finding.

1. GCF of 8 and 12? FLUENCY

Answer: **4**

1. Factors of 8: 1,2,4,8. Factors of 12: 1,2,3,4,6,12.
2. Greatest shared: 4.

If wrong: Answered 2 — not the greatest.

2. GCF of 15 and 25? FLUENCY

Answer: **5**

1. Factors of 15: 1,3,5,15. Factors of 25: 1,5,25.
2. Greatest shared: 5.

If wrong: Answered 75 (that’s the LCM).

3. LCM of 3 and 5? **FLUENCY**

Answer: **15**

1. 3, 6, 9, 12, 15... and 5, 10, 15... → 15.

If wrong: Answered 1 (that's the GCF).

4. LCM of 6 and 9? **APPLICATION**

Answer: **18**

1. Multiples of 6: 6, 12, 18. Multiples of 9: 9, 18.

2. LCM = 18.

If wrong: Answered 54 (6×9) — multiplying works only when the numbers share no factor. 6 and 9 share a 3.

5. GCF of 42 and 56? **APPLICATION**

Answer: **14**

1. $42 = 2 \times 3 \times 7$; $56 = 2 \times 2 \times 2 \times 7$.

2. Shared primes: 2 and 7 → 14.

If wrong: Answered 7 or 2 — took one shared prime instead of the product of all shared primes.

6. LCM of 8 and 12? **APPLICATION**

Answer: **24**

1. 8, 16, 24... and 12, 24... → 24.

If wrong: Answered 96 (8×12) — they share a factor of 4, so the product overshoots.

7. 36 apples, 48 oranges, most bags, none left over? **REASONING**

Answer: **12 bags — GCF; each bag has 3 apples and 4 oranges**

1. $\text{GCF}(36, 48) = 12$, so 12 bags.

2. $36 \div 12 = 3$ apples per bag; $48 \div 12 = 4$ oranges per bag.

3. GCF, because we are SPLITTING into equal groups with nothing left over.

If wrong: Used LCM (144) — that would be a number of fruit, not a number of bags. Splitting evenly → GCF.

8. Runners lapping every 4 and 10 min? REASONING

Answer: **20 minutes — LCM**

1. Multiples of 4: 4,8,12,16,20. Multiples of 10: 10,20.
2. First shared: 20 minutes.
3. LCM, because two repeating cycles are meeting up.

If wrong: Used GCF (2 minutes), which is when neither runner has finished a lap.

9. Sam: $\text{GCF}(16,24) = 2$ because both even? REASONING

Answer: **No — the GCF is 8**

1. Factors of 16: 1,2,4,8,16. Factors of 24: 1,2,3,4,6,8,12,24.
2. Greatest shared: 8.
3. 2 IS a common factor, but not the greatest — ‘both even’ only guarantees 2 divides both.

If wrong: Confused ‘a common factor’ with ‘the greatest common factor.’ Always list until the lists run out.

Quick answers for fast checking:

#	Level	Answer
1	fluency	4
2	fluency	5
3	fluency	15
4	application	18
5	application	14
6	application	24
7	reasoning	12 bags (GCF)
8	reasoning	20 min (LCM)
9	reasoning	8

Homework — answer key

Use: Parallels the practice sheet one-to-one. Items 7–8 are again the matched split-vs-cycle pair.

Timing: ~15 min at home · independent · review items 7–8 side by side as the next-day warm-up.

1. GCF of 9 and 15? FLUENCY

Answer: **3**

1. Factors of 9: 1,3,9. Factors of 15: 1,3,5,15. $\rightarrow$ 3.

If wrong: Answered 45 (LCM).

2. GCF of 20 and 30? FLUENCY

Answer: **10**

1. Factors of 20: 1,2,4,5,10,20. Factors of 30: 1,2,3,5,6,10,15,30. $\rightarrow$ 10.

If wrong: Answered 5 — not the greatest.

3. LCM of 4 and 5? FLUENCY

Answer: **20**

1. 4,8,12,16,20 and 5,10,15,20 $\rightarrow$ 20.

If wrong: Answered 1 (GCF).

4. LCM of 6 and 10? APPLICATION

Answer: **30**

1. 6,12,18,24,30 and 10,20,30 $\rightarrow$ 30.

If wrong: Answered 60 (6×10) — they share a factor of 2.

5. GCF of 45 and 60? APPLICATION

Answer: **15**

1. $45 = 3 \times 3 \times 5$; $60 = 2 \times 2 \times 3 \times 5$.

2. Shared: $3 \times 5 = 15$.

If wrong: Answered 5 or 3 — took one shared prime instead of both.

6. LCM of 9 and 12? APPLICATION

Answer: **36**

1. 9,18,27,36 and 12,24,36 $\rightarrow$ 36.

If wrong: Answered 108 (9×12) — they share a factor of 3.

7. 28 pencils, 42 erasers, most baskets? REASONING

Answer: **14 baskets — GCF (2 pencils and 3 erasers each)**

1. $\text{GCF}(28, 42) = 14$.
2. $28 \div 14 = 2$ pencils; $42 \div 14 = 3$ erasers.
3. GCF, because we are splitting into equal groups.

If wrong: Used LCM (84) — that is a quantity of items, not a count of baskets.

8. Alarms every 3 h and 8 h? REASONING

Answer: **24 hours — LCM**

1. 3,6,9,12,15,18,21,24 and 8,16,24 → 24 hours.
2. LCM, because two cycles are meeting again.

If wrong: Used GCF (1 hour) — at 1 hour neither alarm has completed its cycle.

Quick answers for fast checking:

#	Level	Answer
1	fluency	3
2	fluency	10
3	fluency	20
4	application	30
5	application	15
6	application	36
7	reasoning	14 baskets (GCF)
8	reasoning	24 hours (LCM)

Lesson slides — teaching notes & timing

Mini-lesson deck: ~12–15 min, then launch into the practice sheet. Slide numbers match the deck.

Slide	~Time	Note
1/8	0:00	Frame the skill: computing both is easy; CHOOSING is the skill.
2/8	1:00	Hook — read both problems, don't solve. Ask what feels different. Someone will say 'one splits, one repeats.' That's the whole lesson.
3/8	3:00	Name both definitions side by side. Keep the split/line-up language — it is what students actually retain.
4/8	5:00	

		WE1 — list ALL factors. Stop at 2 deliberately and ask ‘is that the greatest?’ to surface the not-the-greatest error.
5/8	7:00	WE2 — note that $4 \times 6 = 24$ is a common multiple but NOT the least. Multiplying only works when there are no shared factors.
6/8	9:00	CFU — all-student response. Answer 12. Watch for 6.
7/8	11:00	The decision rule plus the size check: $GCF \leq$ your numbers, $LCM \geq$ your numbers. A student who swapped can self-catch.
8/8	13:00	Launch the in-class practice sheet.