



Writing expressions for real situations

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 writing-expressions lesson. 5–8 min, independent. Builds on evaluating expressions (the “Expressions with variables” sheet (Grade 6)).

Timing: 5–8 min · independent. Items 1 and 4 both separate a one-time amount from a repeating rate — the modelling idea that carries into equations.

1. \$12 join + \$8/hour, cost of 3 hours? **FLUENCY**

Answer: **$12 + 8h$; \$36**

1. The \$12 is paid once, so it is a standalone term.
2. The \$8 repeats per hour, so it multiplies h : $8h$.
3. $12 + 8h$. At $h = 3$: $12 + 24 = 36$.

If wrong: Wrote $20h$ (\$60) — added the one-time fee into the hourly rate. A fee paid once never multiplies the variable.

2. 7 less than n , at $n = 20$? **APPLICATION**

Answer: **$n - 7$; equals 13**

1. ‘7 less than n ’ means start at n and take 7 away: $n - 7$.
2. At $n = 20$: $20 - 7 = 13$.

If wrong: Wrote $7 - n$ (giving -13) because 7 is said first. In English the order of the words is reversed from the subtraction.

3. 5 books per box, b boxes, 9 boxes? **APPLICATION**

Answer: **$5b$; 45 books**

1. Each box contributes 5 books, repeated b times: $5b$.
2. At $b = 9$: $5(9) = 45$.

If wrong: Wrote $5 + b$ — used addition where the situation repeats a group.

4. 25 L losing 3 L/day, after 6 days? REASONING

Answer: **25 – 3d; 7 litres left**

1. 25 is the starting amount — a one-time quantity.
2. 3d is the total lost: 3 litres repeated over d days.
3. Losing means subtracting: $25 - 3d$. At $d = 6$: $25 - 18 = 7$ litres.

If wrong: Wrote $3d - 25$, or $22d$ (folded the start into the rate). The starting amount stands alone; only the repeating amount multiplies d.

Quick answers for fast checking:

#	Level	Answer
1	fluency	12 + 8h; \$36
2	application	n – 7; 13
3	application	5b; 45
4	reasoning	25 – 3d; 7 L

Practice Worksheet — answer key

Use: During the lesson after the mini-lesson/deck. Item 8 shows why testing $k = 1$ is a bad check — both the right and wrong expressions agree there.

Timing: 15–25 min · pairs or independent · circulate on 7–9. Items 1–3 fluency, 4–6 application, 7–9 reasoning. Item 7 asks students to invent a context, which reveals whether they read the expression or just compute it.

1. \$4 per ticket, t tickets, 8 tickets? FLUENCY

Answer: **4t; \$32**

1. Cost repeats per ticket: $4t$. At $t = 8$: 32.

If wrong: Wrote $4 + t$.

2. 15 more than n, at n = 10? FLUENCY

Answer: **n + 15; 25**

1. ‘More than’ means add: $n + 15$. At $n = 10$: 25.

If wrong: Wrote $15n$ — read ‘more’ as multiply.

3. 6 less than n , at $n = 14$? **FLUENCY**

Answer: $n - 6$; 8

1. Start at n , take 6 away: $n - 6$. At $n = 14$: 8.

If wrong: Wrote $6 - n$ (giving -8) — followed the word order instead of the meaning.

4. \$30 signup + \$5/month, 4 months? **APPLICATION**

Answer: $30 + 5m$; \$50

1. Signup once: 30. Monthly repeats: $5m$.
2. $30 + 5m$. At $m = 4$: $30 + 20 = 50$.

If wrong: Wrote $35m$ (\$140) — folded the signup into the monthly rate.

5. \$10 + \$2/passenger, 7 passengers? **APPLICATION**

Answer: $10 + 2p$; \$24

1. Base fare once: 10. Per passenger: $2p$.
2. At $p = 7$: $10 + 14 = 24$.

If wrong: Wrote $12p$ (\$84).

6. 60 sweets, 4 eaten weekly, after 9 weeks? **APPLICATION**

Answer: $60 - 4w$; 24 sweets

1. Start with 60. Lose 4 each week: $4w$ total.
2. $60 - 4w$. At $w = 9$: $60 - 36 = 24$.

If wrong: Wrote $4w - 60$, or $56w$.

7. A situation for $9c$? **REASONING**

Answer: **Any situation with 9 repeated c times — e.g. c crates of 9 apples, or c weeks of 9 hours**

1. $9c$ means 9 multiplied by c , so 9 must be a per-unit amount that repeats.
2. Example: 'Each crate holds 9 apples; c is the number of crates, so $9c$ is the total apples.'
3. Say clearly what c stands for — an expression is meaningless without it.

If wrong: Described a situation with 9 and c added, or never defined c . Naming the variable is part of the answer.

8. Kim: \$18 join + \$7/session = 25k? REASONING

Answer: **Wrong — should be $18 + 7k$; at $k = 5$ it is \$53**

1. Kim added $18 + 7 = 25$ and multiplied all of it by k .
2. But the \$18 is paid ONCE, not once per session.
3. Correct: $18 + 7k$. At $k = 5$: $18 + 35 = 53$. Her version gives 125 — far too much.

If wrong: Accepted 25k because ‘both numbers are in there.’ Test with a value: at $k = 1$ both give 25, which hides the error — check $k = 2$ as well.

9. s sweets among 6 people, s = 48? REASONING

Answer: **$s \div 6$ (or $s/6$); each gets 8**

1. Sharing equally means dividing: $s \div 6$.
2. At $s = 48$: $48 \div 6 = 8$ each.

If wrong: Wrote $6 \div s$ — reversed the division. The total is what gets split.

Quick answers for fast checking:

#	Level	Answer
1	fluency	$4t$; \$32
2	fluency	$n + 15$; 25
3	fluency	$n - 6$; 8
4	application	$30 + 5m$; \$50
5	application	$10 + 2p$; \$24
6	application	$60 - 4w$; 24
7	reasoning	e.g. c crates of 9
8	reasoning	$18 + 7k$; \$53
9	reasoning	$s \div 6$; 8

Homework — answer key

Use: Parallels the practice sheet. Item 8 mirrors practice item 8; both expose that $d = 1$ is a useless test value.

Timing: ~15 min at home · independent · review item 8 as the next-day warm-up.

1. \$6 per pen, 7 pens? FLUENCY

Answer: **6t; \$42**

1. Repeats per pen: 6t. At $t = 7$: 42.

If wrong: Wrote $6 + t$.

2. 22 more than n, at n = 9? FLUENCY

Answer: **$n + 22$; 31**

1. Add: $n + 22$. At $n = 9$: 31.

If wrong: Wrote $22n$.

3. 11 less than n, at n = 30? FLUENCY

Answer: **$n - 11$; 19**

1. $n - 11$. At $n = 30$: 19.

If wrong: Wrote $11 - n$ (giving -19).

4. \$40 start + \$3/month, 6 months? APPLICATION

Answer: **$40 + 3m$; \$58**

1. Start once: 40. Monthly: 3m. At $m = 6$: $40 + 18 = 58$.

If wrong: Wrote $43m$ (\$258).

5. \$12 + \$5/pack, 8 packs? APPLICATION

Answer: **$12 + 5p$; \$52**

1. Base once: 12. Per pack: 5p. At $p = 8$: $12 + 40 = 52$.

If wrong: Wrote $17p$ (\$136).

6. 50 marbles, 6 removed daily, after 7 days? APPLICATION

Answer: **$50 - 6w$; 8 marbles**

1. Start 50, lose 6w. At $w = 7$: $50 - 42 = 8$.

If wrong: Wrote $6w - 50$, or $44w$.

7. s stickers among 4 friends, s = 36? REASONING

Answer: $s \div 4$ (or $s/4$); each gets 9

1. Sharing equally is division: $s \div 4$.
2. At $s = 36$: 9 each.

If wrong: Wrote $4 \div s$ — reversed the division.

8. Marco: \$14 register + \$9/day = 23d? REASONING

Answer: **Wrong** — should be $14 + 9d$; at $d = 3$ it is \$41

1. Marco added $14 + 9 = 23$ and multiplied everything by d .
2. The \$14 registration is paid once, not once per day.
3. Correct: $14 + 9d$. At $d = 3$: $14 + 27 = 41$. His version gives 69.

If wrong: Accepted $23d$. Note both give 23 at $d = 1$ — always test a second value.

Quick answers for fast checking:

#	Level	Answer
1	fluency	$6t$; \$42
2	fluency	$n + 22$; 31
3	fluency	$n - 11$; 19
4	application	$40 + 3m$; \$58
5	application	$12 + 5p$; \$52
6	application	$50 - 6w$; 8
7	reasoning	$s \div 4$; 9
8	reasoning	$14 + 9d$; \$41

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: modelling a situation, not just computing.
2/8	1:00	Hook — poll 20h vs $12 + 8h$. Do NOT resolve. Fee-folding is the dominant modelling error.
3/8	3:00	The two questions are the whole method. Write them on the board and leave them up.
4/8	5:00	WE1 — resolve the hook, and show the dollar difference at $h = 3$. The size of the error makes it memorable.

5/8	7:00	WE2 — word order. ‘Less than’ reverses; ‘more than’ does not. Practise reading the sentence back from the expression.
6/8	9:00	CFU — all-student response. Answer $25 - 3d$. Watch for $3d - 25$ and $22d$.
7/8	11:00	Why $k = 1$ is a bad test. Connects directly to the equivalence work in EE-05.
8/8	13:00	Launch the in-class practice sheet.