PRACTICAL AND FINANCIAL LITERACY

Recognizing Unreasonable Answers

Difficulty level: Easy

Practical and Financial Literacy

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Overview of the concept

This is how you catch a mistake before it costs you, like noticing that a grocery total of a thousand dollars or a negative age cannot possibly be right. A calculator slip can turn a twenty dollar shop into a two thousand dollar one, and a quick check catches it before you pay. A car travelling at 500 kilometres an hour and a person who is -5 years old are the same kind of giveaway. Asking whether an answer makes sense in real life is the cheapest way to catch a mistake.



Rule

An answer is reasonable only if it makes sense in the real world.

Estimate the answer first, then compare: if the answer cannot happen, or is far from the estimate, rework the problem and look for a sign slip, an extra zero, or a misplaced decimal.

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Worked examples

EXAMPLE 1

Q A child's age comes out as -4 years. Is that a reasonable answer?

SOLUTION

Problem: find a child's age. Answer: -4 years.

Check: ages cannot be negative.

Verdict: unreasonable; rework the problem.

Ask what the answer means in the real world: can an age be negative?

If not, the answer is unreasonable whatever the working says.

Rework the problem and look for a sign error or swapped numbers.

EXAMPLE 2

Q Three pens at $2 each come to $600. Is that a reasonable answer?

SOLUTION

Problem: 3 pens at $2 each. Answer: $600.

Check: 3 x $2 is about $6, not $600.

Verdict: unreasonable; a decimal or zero slip is likely.

Estimate the answer roughly: 3 x 2 is about 6.

Compare: $600 is one hundred times bigger than $6.

Suspect an extra zero or a misplaced decimal, then recalculate.

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Practice questions

1 A dog's weight comes out as -8 kg. Is that reasonable?

- A Yes
- B No

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2 A temperature in a classroom comes out as -30 degrees Celsius. Is that reasonable?

- A Yes
- B No

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3 A probability comes out as 1.5. Is that reasonable?

- A Yes
- B No

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4 An answer says a class of 30 has 45 students present. Reasonable?

- A Yes
- B No

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5 6 tickets at $5 each come to $3,000. Is that reasonable?

- A Yes
- B No

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6 What is the likely error in the tickets answer?

- **A** An extra zero or misplaced decimal (the answer should be about $30)
- **B** The wrong operation was used
- **C** The answer was rounded too far
- **D** The tickets were counted twice

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7 Estimate first: is 48 x 21 = 10,080 reasonable?

- **A** Yes
- **B** No

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8 A builder orders 20 bags of cement at $8 each. The total comes to $16. Is that reasonable, and what is the likely error?

- **A** No, a zero was dropped or the decimal slipped (the answer should be about $160)
- **B** No, the wrong operation was used
- **C** Yes, it is about right
- **D** No, the answer was rounded too far

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9 A journey of 5 km takes 3 hours on foot. Reasonable?

- **A** Yes
- **B** No

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What should you do when an answer is unreasonable?

A. Rework the problem, looking for the slip

B. Accept the answer and move on

C. Round the answer to the nearest whole number

D. Change the question to fit the answer

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ANSWER KEY

1. No

2. No

3. No

4. No

5. No

6. An extra zero or misplaced decimal (the answer should be about $30)

7. No

8. No, a zero was dropped or the decimal slipped (the answer should be about $160)

9. Yes

10. Rework the problem, looking for the slip

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