Common TSIA2 Math Mistakes

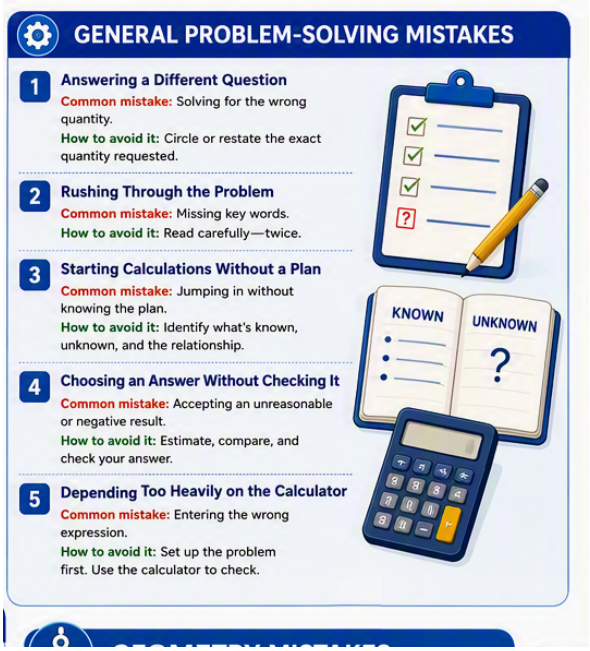
AND HOW TO AVOID THEM



A quick-reference guide for stronger, more accurate problem solving

READ CAREFULLY • PLAN • SOLVE • CHECK

GENERAL PROBLEM-SOLVING MISTAKES



1. Answering a Different Question

Common mistake: Solving for x when the question asks for 2x, a total cost, a percentage, or a particular measurement.
How to avoid it: Circle or restate the exact quantity requested. Before selecting an answer, finish: “The question asks me to find ___.”

2. Rushing Through the Problem

Common mistake: Missing words such as not, least, greatest, increase, or decrease.
How to avoid it: Read once for context and again for mathematical details. The TSIA2 is untimed, so emphasize careful, accurate work.

3. Starting Calculations Without a Plan

Common mistake: Immediately manipulating numbers without identifying the relevant concept.
How to avoid it: Write what is known, what is unknown, and which relationship or formula connects them.

4. Choosing an Answer Without Checking It

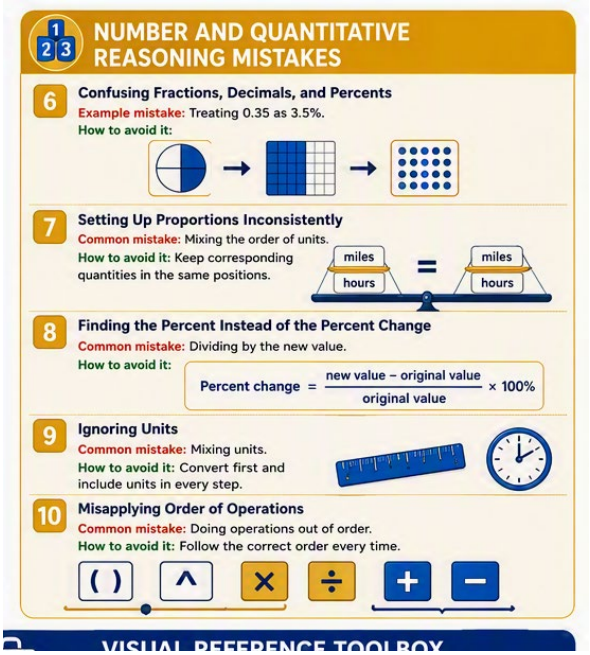
Common mistake: Accepting a negative length or an unreasonable percentage or measurement.
How to avoid it: Estimate first, compare the exact answer with the estimate, and substitute back when practical.

5. Depending Too Heavily on the Calculator

Common mistake: Entering the wrong expression or assuming the calculator identifies the method.
How to avoid it: Write the setup first. A calculator is not available for every TSIA2 question, and handheld calculators are generally not permitted for the online test.

PAUSE • CHECK THE QUESTION • CHECK THE UNITS • CHECK THE ANSWER

NUMBER AND QUANTITATIVE REASONING MISTAKES



6. Confusing Fractions, Decimals, and Percents

Example mistake: Treating 0.35 as 3.5% rather than 35%.

How to avoid it: Decimal to percent: multiply by 100. Percent to decimal: divide by 100. Fraction to decimal: divide numerator by denominator.

7. Setting Up Proportions Inconsistently

Common mistake: Placing miles over hours in one ratio and hours over miles in the other.

How to avoid it: Label units and keep corresponding quantities in the same positions.

8. Finding the Percent Instead of Percent Change

Common mistake: Dividing by the new value instead of the original value.

How to avoid it: Percent change = (new value - original value) / original value × 100%.

9. Ignoring Units

Common mistake: Mixing inches and feet, minutes and hours, or square and linear units.

How to avoid it: Convert measurements before calculating and attach units to each intermediate result.

10. Misapplying Order of Operations

Common mistake: Performing addition before multiplication or mishandling an exponent.

How to avoid it: Work one step at a time: grouping symbols, exponents, multiplication or division, then addition or subtraction.

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ALGEBRAIC REASONING MISTAKES



11. Losing a Negative Sign

Common mistake: Failing to distribute a negative sign to every term inside parentheses.
How to avoid it: Mark each term as the negative value is distributed.

12. Combining Unlike Terms

Common mistake: Simplifying 3x + 2 as 5x.
How to avoid it: Combine only terms with identical variable parts and exponents.

13. Performing an Operation on Only One Side

Common mistake: Adding, subtracting, multiplying, or dividing on only one side of an equation.
How to avoid it: Use a balanced-equation layout and record the operation on both sides.

14. Forgetting to Reverse an Inequality

Common mistake: Dividing by a negative number and leaving the inequality symbol unchanged.
How to avoid it: Reverse the inequality when multiplying or dividing by a negative number.

15. Confusing Slope and Intercepts

Common mistake: Using the y-intercept as the slope.
How to avoid it: In y = mx + b, m is slope and b is the y-intercept. Slope is change in y divided by change in x.

16. Mishandling Exponents

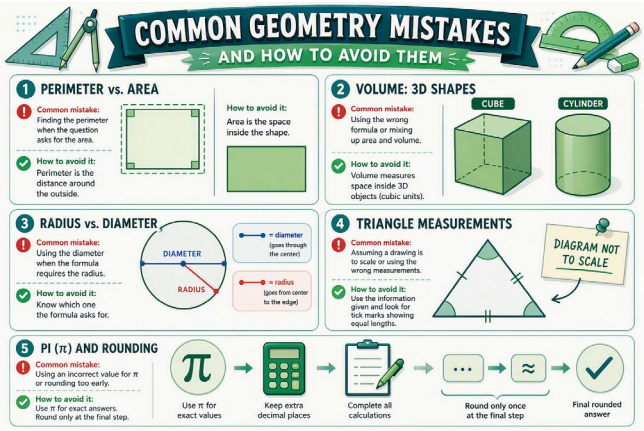
Common mistake: Adding exponents when adding terms or applying an exponent to only one factor.
How to avoid it: Identify the operation first. Multiplication rules are not addition rules.

17. Failing to Check Solutions

Common mistake: Keeping an extraneous result after solving a radical or rational equation.
How to avoid it: Substitute every proposed solution into the original equation and check domain restrictions.

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GEOMETRY MISTAKES



18. Using the Wrong Formula

Common mistake: Calculating perimeter when asked for area, or area when asked for volume.

How to avoid it: Match the answer's dimension: perimeter uses linear units, area uses square units, and volume uses cubic units.

19. Forgetting a Radius-Diameter Conversion

Common mistake: Substituting the diameter into a formula that requires the radius.

How to avoid it: Label d = 2r on the diagram before calculating.

20. Treating a Diagram as Drawn to Scale

Common mistake: Estimating an angle or side from appearance alone.

How to avoid it: Use only stated measurements, markings, and mathematical relationships.

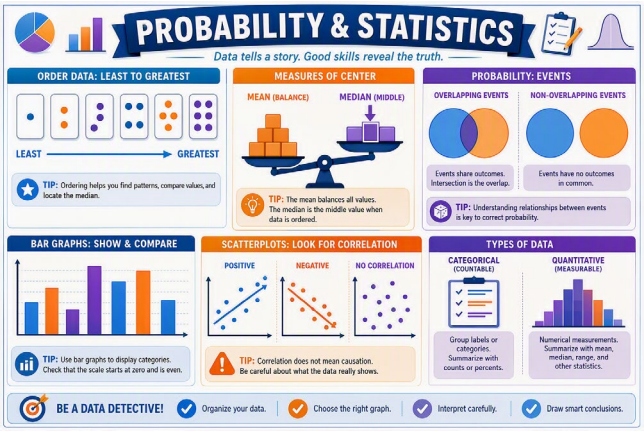
21. Rounding Too Early

Common mistake: Rounding an intermediate result and producing an inaccurate final answer.

How to avoid it: Keep exact values, including fractions or expressions with π, until the final step unless directed otherwise.

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PROBABILITY AND STATISTICS MISTAKES



22. Calculating a Mean Incorrectly

Common mistake: Adding correctly but dividing by the wrong number of observations.

How to avoid it: Count the data values separately, then verify the divisor.

23. Finding the Median Before Ordering Data

Common mistake: Selecting the middle value from an unsorted list.

How to avoid it: Arrange data from least to greatest first.

24. Confusing Mutually Exclusive and Independent Events

Common mistake: Assuming events that cannot occur together are independent.

How to avoid it: Ask: Can the events occur together? Does one event change the probability of the other?

25. Reading a Graph Without Checking Its Scale

Common mistake: Assuming each gridline represents one unit.

How to avoid it: Read the title, labels, units, intervals, legend, and starting point before interpreting.

26. Confusing Correlation with Causation

Common mistake: Claiming one variable causes another solely because they are associated.

How to avoid it: Describe the observed relationship only. Association alone does not establish cause.

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