10.1 Quantitative response formats: all valid values and numerical entry

Name: _____ Class: _____ Date: _____

KEY WORDS candidate solution • rounding

Objective

Select every allowed answer without assuming a fixed number; State numerical answers in the requested representation and unit; Use estimation and substitution to verify a computed response.

Original public tasks and locally authored marking guidance. No official score is assigned.

1 Key knowledge and worked examples

candidate solution : A value produced by a solving step that still needs checking.

rounding : Reporting a value at a stated precision after calculation.

Read the response instruction before calculation. Select-one asks for one option; select-one-or-more can require several; Numerical Entry has no options to cue an approximate answer. Identify restrictions such as integer, positive or rounded to a stated precision. In select-all tasks, test every option against those restrictions.

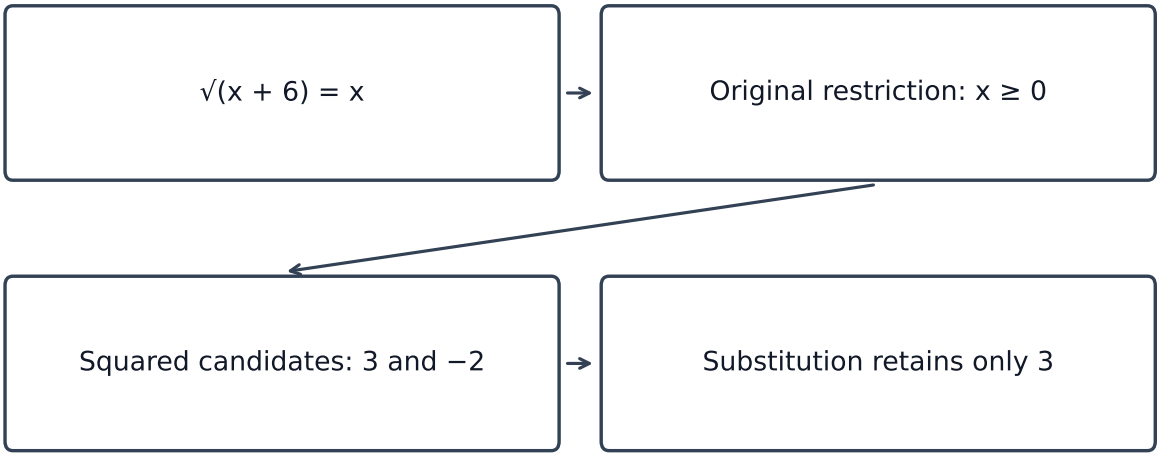
Solving a transformed equation yields candidates. A denominator restriction or a sign requirement in an unsquared radical can remove one. Substituting into the original is more reliable than recognising a familiar-looking list of roots. For inequality options, test the strict or inclusive boundary as written.

A requested fraction and a requested decimal require different entry forms. Equivalent fractions are accepted in official Numeric Entry; simplify if needed to fit the boxes. Apply rounding only at the end when instructed. Check units: a percentage answer 25 differs from a probability answer 0.25. The free local numerical drill below requests an exact terminating decimal; it is a teaching check, not a replacement for the official two-box fraction interface.

Estimate before using the on-screen General-test calculator and verify after entry. An implausible order of magnitude often reveals misplaced parentheses or a percent converted incorrectly. The GRE General mathematical level does not require calculus; sophisticated reasoning can still arise from elementary constraints and careful instructions.

Original select-all: x is real and $(x-2)(x+3)=0$. Choices -3, -2, 0, 2, 3. Select -3 and 2, and verify each factorisation root in the original. If the stem additionally requires

$x > 0$, only 2 remains. Original numerical entry: three of eight equally likely counters are marked; enter the probability as a decimal. P(marked)=3/8=0.375. Enter 0.375, not 37.5 (a percent value) or 3 (the count).



Square both sides, then check each candidate in the original: only 3 survives

2 Practice

2.1 Select all real solutions of $\sqrt{x+6} = x$ from -3, -2, 0, 2, 3. Then enter the probability of drawing one marked counter from a bag with seven marked and thirteen unmarked counters, as a decimal.

3 Exam-style questions

3.1 Select every listed integer satisfying $-2 \le x < 4$ and $x^2 > 1$: -3, -2, -1, 0, 1, 2, 3, 4. Then enter 7/12 as a decimal rounded to the nearest hundredth.

Solutions

2.1 3 only; 0.35. The original radical requires x nonnegative. Squaring gives $x^2 - x - 6 = (x - 3)(x + 2) = 0$. The candidate -2 fails both the sign condition and substitution. At 3 both sides equal three. For the probability, the denominator is twenty, so $P = 7/20 = 0.35$. Enter a probability, not the percent value 35.

3.1 -2, 2 and 3; 0.58. The first restriction keeps integers -2 through 3. The strict squared inequality excludes -1,0,1. Four fails the strict upper endpoint; -3 fails the lower bound. The decimal $7/12 = 0.58333\ldots$ rounds to 0.58. The rounding instruction here is explicit; an exact fraction response would require the fraction representation instead. Check each listed value and retain every valid one.

Local review checklist: follow every response instruction; support the answer with the stated evidence; explain rejected alternatives or an opposing view; check scope, restrictions and clarity. For writing, this is a formative checklist, not an official rubric score.