Quantitative comparison and number reasoning

GRE General Test

Scope and task

Original classroom practice within the reviewed shorter-test task types. This does not simulate an adaptive test or predict a scaled or writing score.

- Compare quantities across all allowed values
- Use arithmetic, ratios, divisibility and powers
- Recognise when the relationship cannot be determined

constraint : A condition limiting allowed values.

indeterminate : Not fixed by the given information.

Read the evidence and choose a method

Quantitative Comparison has four fixed relationships: A greater, B greater, equal, or cannot determine.

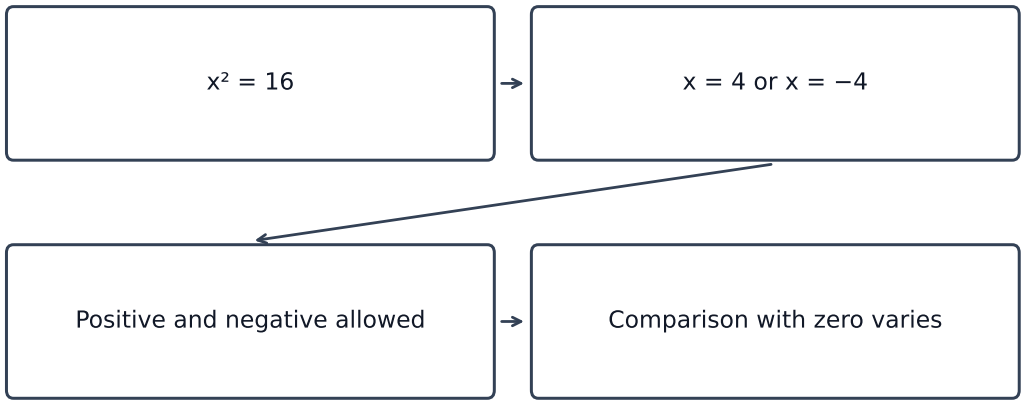
Check all constraints. A variable can be negative, zero or fractional unless the stem restricts it.

Use strategic substitutions to disprove a fixed relation. They can show indeterminacy but a few examples do not prove universality.

Simplify both quantities without silently dividing by a value that could be zero or negative.

Worked reasoning

Given x^2=9, x can be 3 or −3. Quantity A=x; B=0. A is greater for 3 and smaller for −3, so the relationship cannot be determined. If x is positive, only 3 is allowed and A is greater.



$x^2 = 16$ allows $x = 4$ or $x = -4$, so the comparison with zero is not fixed

Conditions and common errors

Figures are not necessarily drawn to scale. Given labels and constraints carry the evidence.

Original application

Quantitative Comparison uses these relationships: A. Quantity A is greater. B. Quantity B is greater. C. Equal. D. Cannot be determined. Given real x with $x^2 = 16$, compare Quantity A: x, Quantity B: 0. Repeat with the added condition $x > 0$.

Model and reasoning

Without the added condition, **D**: x=4 makes A greater, while x=-4 makes B greater. With $x > 0$, **A**, because only x=4 is permitted. The principal square root of 16 is four, but the equation has both roots. One chosen example cannot prove a relationship over all allowed values.

Independent transfer

With the same four answer categories, let $a > 0$ and $b < 0$. Compare Quantity A: a/b, Quantity B: b/a. Give admissible examples if the relationship can vary, and identify when equality occurs.

■ **Check after attempting**

D. For a=2,b=-1, A=-2 and B=-1/2, so B is greater. For $a = 1$,b=-2, A=-1/2 and B=-2, so A is greater. For $a = 1$,b=-1 they are equal. More generally $a/b = b/a$ means $a^2 = b^2$, and the stated opposite signs give a=-b. Multiplying an inequality by the negative product ab reverses direction; ignoring this sign would reverse conclusions.