

# GRE: Intro. To Quantitative (Math)

## Four subject areas

YES	NO
Arithmetic	No horrible number crunching!
Algebra	No logs or imaginary numbers!
Geometry	No proofs or constructions! No trigonometry!
Data Analysis	No standard deviation formula!
	No calculus! ☺

See official list of topics on p. 217, full review in Ch. 7, and practice problems in Chs. 5 – 8.

Remember the golden rule: **Read for comprehension, not speed.** Even in the math section, understanding the question is half the battle for many GRE students.

## Five formats of problem

Multiple choice (one answer): MC1 (p. 122)

Sometimes we can take advantage of MC questions to “cheat” by “plugging in the answer” or eliminating clearly wrong choices.

Multiple choice (one or more answers): MC1+ (p. 126)

Numeric entry (free response): NE (p. 129)

Data set (pp. 132, 171, 172, 291). Take your time to digest the information.

**Quantitative comparison: QC\***

## Nth Degree Resources

### Tables / Flash cards

Facts and formulas that your calculator will not help you with!

Higher powers and roots, decimal → fraction conversions, formulae and miscellaneous facts.

\$40 for full set.

Economy version: Rent for \$10 / week (\$40 deposit required).

### Free videos

My YouTube channel (link on website) has some generic math lessons and “simulacra” videos to solve problems similar to some in the book. Search by key word or page number.

### Course videos

I now offer video versions of this class’s lectures for \$10 / hr (\$120 for entire course).

[www.nthDegreeTutoring.com](http://www.nthDegreeTutoring.com)

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## \*Quantitative Comparison

### The Rules (p. 115)

Two quantities are given. Which one is greater?  
 Refer to any additional information given above  
 Same letter = same number

### Understand the format

1. Very straightforward, I hope

$$x > 5$$

A

B

Answer

$x$

3

2. This question is just as simple, but it trips up many students. Make sure you understand it!!!!

$$x > 5$$

A

B

Answer

$x$

8

### Strategies

I always just plug numbers in!

**“Plugging in”:** The student go-to. Fine if used smartly, but it won’t solve every problem.

- Get some perspective first to *guide* your plugging in.
- Plug in multiple diverse choices
  - Make a number as large / small as possible
  - If plugging in two or more numbers, play around with their distribution (how they are repeated or spread apart).
- Two different answers proves (D). So if you get (A), try to get (B)!



3. Very easy with plugging in:

Lionel is younger than Maria.

<u>A</u>	<u>B</u>	<u>Answer</u>
Twice Lionel's age	Maria's age	

4. Harder

$$x > 3$$

<u>A</u>	<u>B</u>	<u>Answer</u>
$2x + 1$	$4x - 6$	

**Algebraic simplification:** Essential for many problems.

- Goal: Make expressions simpler or easier to compare.
- Like an equation, you may add, subtract, multiply, or divide each side by a positive number at any time.
- Unlike an equation, you are only simplifying, not “solving”. Do not put an equals sign between A and B! The question is always, “Which one is greater, A or B?”
- Whichever column is greater at the end is the answer!

5. Example: Do # 4 again with algebra

6. Solve algebraically

<u>A</u>	<u>B</u>	<u>Answer</u>
$2(x + 3)$	$\frac{4x + 16}{2}$	

7. Solve algebraically

$$x > 5$$

<u>A</u>	<u>B</u>	<u>Answer</u>
$3x + 1$	$x + 11$	

**Advantages:** Look for advantages that each side might have. If one side has all the advantages, it wins. If each side has a different advantage, see if you can prove the answer is (D). Try plugging in very small and very large numbers.

8. Analyze by comparing advantages

$$\frac{\underline{A}}{5x + 3}$$

$$\frac{\underline{B}}{7x - 6}$$

Answer

9. Analyze by comparing advantages

$n$  is a positive or negative whole number

$$\frac{\underline{A}}{n^2 + 1}$$

$$\frac{\underline{B}}{n^4 + 12}$$

Answer

**Practice: Use any method you want!**

- 10.

$$y = 2x^2 + 7x - 3$$

A

B

Answer

$x$

$y$

- 11.

$$w > 1$$

A

B

Answer

$$7w - 4$$

$$2w + 5$$

- 12.

$$y > 4$$

A

B

Answer

$$\frac{3y + 2}{5}$$

$y$

13.

A

$$x < y < z$$

B

Answer

y

The average of x, y, and z

Did you get (C) ?!



Yeah!



## Quiz Answer Key (Don't Peek!)

10. D

11. D

12. B

13. D