Preparing for the GRE - Quantitative

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Geography of the Quantitative Section

- 2 sections
- 35 minutes
- 20 questions
  - 7 – 8 **Quantitative Comparisons**
  - Some **Problem Solving**
  - Some **Chart and Graph Questions**
  - Some **Numeric Entry**
  - Some **All that Apply (multiple choice, multiple answers)**

What math background is needed?

- Needed
  - Arithmetic
  - Basic algebra
  - Basic geometry
  - Elementary statistics
  - Quantitative reasoning
- NOT needed
  - Calculus (or pre-calculus)
  - Trigonometry
  - High-level algebra or geometry

How to prepare?

- Review math facts
  - Chapters 9 – 12 Princeton Review
- Learn tips and techniques
  - Chapter 8 Princeton Review
- Practice, Practice, Practice!
  - Chapters 16 – 19 Princeton Review
  - Practice Questions, PowerPrep Software

“Math Facts” – an example

- Order of Operations
  - **PEMDAS**

$12 + 4(2 + 1)^2 / 6 – 7 =$

Please **E**xcuse **M**y **D**ear **A**unt **S**ally

Parentheses
Exponents
Multiplication/Division
Addition/Subtraction

Tackling regular math problems

- Don’t assume drawings are to scale
- “It cannot be determined”
  - Easy question: could be the answer
  - Difficult question: almost never the answer
- Read and copy carefully
- Work backward
  - Try the answers first (or substitute)
- Plugging in numbers

Working backward – example

Which of the following values of a does not satisfy $5a - 3 < 3a + 5$?

A	-2
B	0
C	2
D	3
E	4

- Try 0 $-3 < 5$
- Try 2 $7 < 11$
- Try 3 $12 < 14$
- Try –2 $-13 < -1$
- Try 4 $17 = 17$
- Therefore “E”

Ballparking

- Eliminate answers that are “out of the ballpark.”
- Example:

A 100-foot rope is cut so that the shorter piece is 2/3 the length of the longer piece. How many feet long is the shorter piece?

( ) 75
( ) 66 2/3
( ) 50
( ) 40
( ) 33 1/3

Plugging in – Example
(Make up numbers and plug them in)

The positive difference between the squares of 2 consecutive integers is always:

	Use 2 & 3 9 – 4 = 5	Use 0 & 1 1 – 0 = 1
A the square of an integer	No	-
B a multiple of 5	Yes	No
C an even integer	No	-
D an odd number	Yes	Yes
E a prime number	Yes	No (1 is not a prime number by definition)

Approximate – Example

Which of the following is the closest approximation of the value of $\frac{(0.507)(507)}{5.07}$?

A 1

B 5

C 10

D 50

E 100

- **Approximate each value in the equation**

$\frac{(.5)(500)}{5}$ =

$\frac{250}{5}$ = 50

therefore D

“Trap Answers” - example

The price of a jacket was reduced by 10%. During a special sale, the price was discounted another 10%. What was the total percentage discount from the original price of the jacket?

A 15%

B 19%

C 20%

D 21%

E 25%

Which is the “trap answer”?

(the one that seems too easy)

Charts

- 4 – 5 questions per chart or graph
  - Grids
  - Bar graphs
  - Pie charts
  - Tables
- Draw your own picture if it helps
- All are special cases of general math

Quantitative Comparisons

- Only **4** choices
  - A is Column A **always** greater?
  - B is Column B **always** greater?
  - C are they **always** equal?
  - D none of the above (can't be determined)
- If the question has only numbers,
  - D cannot be the answer!

Quantitative Comparisons

- Avoid Computation (when you can)
  - Example

Area of a circle, diameter 12

Surface area of a sphere, diameter 12

Solve:

Picture a circle of 12” diameter

Picture a ball of 12” diameter

Which one would have a larger surface area?

Do you need to use formulas?

Quantitative Comparisons

- Avoid lengthy calculations (when you can)
  - Example

A		B
9 (3 + 24)	?	(9 X 3) + (9 X 24)
	=	9 (3 + 24)

Numeric Entry - Type a Number

- New to the computer-based GRE
- A few questions
- Answer either as a number in a single box, or as a fraction in two boxes

Strategies for Numeric Entry

- Answer the question that is asked
- If you are asked to round your answer
  - Required degree of accuracy (e.g. nearest integer)
- Is your answer reasonable?

Numeric Entry - Example

- The total amount of Judy's water bill for the last quarter of the year was $40.50. The bill consisted of a fixed charge of $13.50 plus a charge of $0.0075 per gallon for the water used in the quarter. For how many gallons of water was Judy charged for the quarter?

– **gallons**

- Click on the answer box and type in a number. Backspace to erase.