Questions:

Counting:
$100$: How many ways are there to arrange six items, WITH repetition?
$200$: How many ways are there to arrange six items, WITHOUT repetition?
$300$: How many groups of four people can you make from a group of eight people when order matters?
$400$: How many ways are there to arrange four people from a group of eight when order DOES NOT matter?
$500$: If Frodo, Sam, Aragorn, Legolas, Gimli, Merry, Pippin, Gandalf, and Boromir are all waking to Mordor single-file and Merry and Pippin want to walk together, how many different walking arrangements are there?

Exponents (calculators were not permitted for this category):
$100$: What is $5^5$?
$200$: What is $2^{-10}$?
$300$: What is $3^3 \times 3^4$?
$400$: What is $(4^3)^2$?
$500$: What is $\left(\left(2^{-2}\right)^3\right)^{-1}$?

Platonic Solids:
$100$: How many sides does a dodecagon have?
$200$: How many sides does an icosahedron have?
$300$: What is the higher-dimensional equivalent of a face?
$400$: How many cells does a hypercube have?
$500$: How many vertices does a hypercube have?

Arithmetic Tricks (calculators were not permitted for this category):
$100$: What is $58 \times 11$?

$200$: What is $47 \times 99$?

$300$: What is $6157 \times 5$?

$400$: What is $999 \times 85$?

$500$: What is $53 \times 67$?

**Angles:**

$100$: What is a reflex angle?

$200$: Two angles add to $90^\circ$. What do we call those angles?

$300$: Solve for $y$:

$400$: Solve for all angles. ($a$, $b$, $c$, and $d$)

$500$: Solve for $x$ above.

**Units and Dimensions:**

$100$: If force is typically measured in Newtons ($\frac{kg \times m}{s^2}$), what are the dimensions of force?

$200$: What are four of the seven fundamental dimensions?
$300: Ten hectometres is how many decimetres?
$400: One megacandela is how many nanocandela?
$500: If the universe is 13.7 billion years old, how old is it in seconds?