Quant tips

* Write down what is asked ?

* Back solve, Venn Diagram, Sample values

* Don't jump/skip while adding/multiplying/dividing
  → Solve 1 step at a time
  → numerous silly mistakes

* Circles — don't confuse b/w radius & diameter
  - always find radius & underline it
  - make mistake in 3 problems

* x% of = x/100
  y% less = 1 − y/100

* Signs (variables) — reciprocals, Squares } be careful

Math

Consecutive Integers Strategy

Evenly Spaced Sets

Mean = Median = (first + last) / 2

Sum = Mean * number of items

How many? $\frac{(\text{Last} - \text{First})}{\text{Increment}} + 1$

Average of odd consecutive integer = integer

even = non-integer

→ The product of k consecutive integers is always divisible by k factorial (k!)

The sum of n consecutive integers is divisible by n if n is odd, but it not divisible by n if n is even

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* Statement	
$xy > 0$	x & y are both +ve or both -ve
$xy < 0$	one is -ve, other +ve
$x^2 - x < 0$	$x^2 < x$, so $0 < x < 1$

* $|x + b| < c \Leftrightarrow \begin{matrix} x+b < c \\ -(x+b) < c \end{matrix}$

$\boxed{-b}$ is the center point on number line

ODDS & EVENS

integers:
- Odd ± Odd or Even −/+ Even = Even
- Odd ± Even = Odd
- any * Even = Even
- * of any non even = odd

		Even?	Odd?	Non-integer?
Even	Even	✓	✓	✓
Even	Odd	✓	X	✓
Odd	Even	X	X	✓
Odd	Odd	X	✓	✓

divided by

Math

Sequences

* **Linear**

Direct formula

$S_n = kn + x$

Recursive formula

$S_n = S_{n-1} + k$

$S_1 = k + x$

k is difference

* some other constant

eg. $S_1 = 8 \quad S_2 = 6$

$k = -2$

$x = S_1 - k = 10$

$S_n = -2 \cdot n + 10$

* **Exponential / Geometric**

$S_n = x k^n$

$S_n = k S_{n-1}$

$S_1 = x k$

* **Exponential growth**

$y(t) = y_0 \cdot k^t$

t → time

y_0 → value at time zero

k → constant multiplier

Probability

① x & y independent, probability of both AND
: multiply individual odds

② $\frac{\#\text{ of winning outcomes}}{\text{total \# of outcomes}}$

③ x & y independent & mutually exclusive : OR
: add odds

④ x & y independent but NOT mutually exclusive: OR
: add odds — odds of happening together

⑤ Probability of event + odds of event not happening = 1

$$\text{New} = \text{Original} \times \left(1 \pm \frac{\%\uparrow}{100}\right)$$

or $$\text{New} = \text{Original} \times \left(1 - \frac{\%\downarrow}{100}\right)$$

$$\text{New} = \text{Original} \pm \text{change}$$

* Can compute % change using ratio of any two : Original, change, New

Chemical mixture problem

Volume	Original	change	New
Alcohol			
Water			
Total solution			

* only insert actual amounts
* compute using % off the table