Case Interviews
Fast Maths
Cheatsheet

Case Maths: Core Formulas

Revenue	=	**Volume x Price**
Cost	=	**Fixed cost + Variable cost**
Profit	=	**Revenue - Cost**
Profit margin (profitability)	=	**Profit / Revenue**
Return on investment (ROI)	=	**Annual profit / Initial investment**
Breakeven (payback period)	=	**Initial investment / Annual profit**

Case Maths: Optional Formulas

EBITDA	=	**Net Income + Taxes + Interest Expense + Depreciation + Amortization**
Net Present Value (NPV)	=	**Today's expected cash flow value – Today's invested cash value**
Return on equity	=	**Profits / Shareholder equity**
Return on assets	=	**Profits / Total assets**

Case maths tips & techniques

Case maths tips & techniques

Handle large numbers faster by:

Rounding numbers
- Round by + / - 10%
- Round UP then DOWN

Abbreviating large numbers
- Use labels (k, m, b)
  - *e.g. 100k, 1m, 2b*
- Use scientific notation
  - Multiplication example:

$600 \times 500 = 6 \times 5 \times 10^2 \times 10^2$

$30 \times 104 = 300,000 = 300k$

  - Division example:

$(720,000 / 1,200) / 30 = (72 \times 104) / (12 \times 10^2) / 30$

$72/12 \times 104^{-2} / 30 = 6 \times 10^2 / 30$

$600 / 30 = 20$

Case maths tips & techniques

Simplify calculations through:

Factoring
- Decompose into simple numbers
  - *5 = 10 / 2*
  - *7.5 = 10 x 3 / 4*
  - *15 = 10 x 3 / 2*
  - *25 = 100 / 4*
  - *50 = 100 / 2*
  - *75 = 100 x 3 / 4*
- Factor numerator / denominator

Expanding
- With additions
  - *e.g., 68 x 35 = 68 x (10 + 25)*
- With subtractions
  - *e.g., 68 x 35 = (70 - 2) x 35*

IGotAnOffer

Case maths tips & techniques

Make growth rate calculations more efficient by:

- Multiply growth rates
  - *e.g. 10% then 20% growth*
    = (1.1 x 1.2) - 1
- Estimate compound growth
  - *e.g. 7% growth for 5 years = 5 x 7%*

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