FORMULAE TO BE USED IN IB BUSINESS MANAGEMENT EXAMINATIONS

The following formulae will be used in the IB Business Management external assessment. A copy of the formulae will be provided for students in the examination. A copy should be provided for students in mock examinations and tests, where applicable.

FORMULAE FOR RATIO ANALYSIS

PROFITABILITY RATIOS

Gross profit margin = \( \frac{\text{Gross profit}}{\text{Sales revenue}} \times 100 \)

Net profit margin = \( \frac{\text{Net profit}}{\text{Sales revenue}} \times 100 \)

LIQUIDITY RATIOS

Current ratio = \( \frac{\text{Current assets}}{\text{Current liabilities}} \)

Acid test (quick) ratio = \( \frac{\text{Current assets} - \text{stock}}{\text{Current liabilities}} \)

EFFICIENCY RATIOS

Return on capital employed (ROCE) = \( \frac{\text{Net profit before interest and tax}}{\text{Total capital employed} \uparrow} \times 100 \)

\( \uparrow \text{Capital employed} = \text{loan capital (or long-term liabilities)} + \text{share capital} + \text{retained profit} \)
**Stock turnover (number of times)** = \( \frac{\text{Cost of goods sold}}{\text{Average stock}} \)  

or

**Stock turnover (number of days)** = \( \frac{\text{Average stock} \times \text{Cost of goods sold} \times 365}{\text{Cost of goods sold}} \)  

* Where average stock = (opening stock + closing stock) ÷ 2  
† Where cost of goods sold is an approximation of total credit purchases

**Debtor days ratio (number of days)** = \( \frac{\text{Debtors}}{\text{Total sales revenue} \times 365} \)  

† Where total sales revenue is an approximation of total credit sales

**Creditor days ratio (number of days)** = \( \frac{\text{Creditors}}{\text{Total credit purchases} \times 365} \)  
† Where cost of goods sold is an approximation of total credit purchases

**Gearing ratio** = \( \frac{\text{Loan capital}}{\text{Total capital employed}} \times 100 \)

**OTHER FORMULAE**

**INVESTMENT APPRAISAL**

**Average rate of return** = \( \frac{(\text{total returns} - \text{capital cost}) \div \text{years of use}}{\text{Capital cost}} \times 100 \)

**Net present value** = \( \sum \text{present values of return} - \text{original cost} \)

**CAPACITY UTILISATION AND PRODUCTIVITY**

**Capacity utilisation rate** = \( \frac{\text{Actual output}}{\text{Productive capacity}} \times 100 \)

**Productivity rate** = \( \frac{\text{Total output}}{\text{Total input}} \times 100 \)
### COST TO BUY AND COST TO MAKE

<table>
<thead>
<tr>
<th>Description</th>
<th>Formula</th>
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</thead>
<tbody>
<tr>
<td><strong>Cost to buy</strong></td>
<td>Price x quantity</td>
</tr>
<tr>
<td><strong>Cost to make</strong></td>
<td>fixed costs + variable costs x quantity</td>
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