



Government of **Western Australia**
School Curriculum and Standards Authority



Western Australian Certificate of Education Examination, 2012

ACCOUNTING AND FINANCE

Stage 3

SPECIFICATIONS BOOKLET

Calculation for depreciation

Straight-line method
$$\frac{\text{Original cost} - \text{Residual value}}{\text{Useful life}}$$

or

$$\frac{\text{Depreciable amount}}{\text{Useful life}}$$

Reducing/Diminishing balance method

Carrying amount = Original cost – Accumulated depreciation

Annual depreciation expense = Carrying amount x depreciation rate

Preparation of ratios

Ratio	Method of calculation
Profit	$\frac{\text{Profit (after income tax)}^A}{\text{Total revenue}}$
Debtors collection	$\frac{\text{Average debtors}}{\text{Net credit sales}} \times \frac{365}{1}$
Inventory/stock turnover	$\frac{\text{Cost of sales}}{\text{Cost of average inventory}}$
Debt to equity	$\frac{\text{Total liabilities}}{\text{Equity (end)}}$
Working capital/current	$\frac{\text{Current assets}}{\text{Current liabilities}}$
Quick asset/liquidity	$\frac{\text{Current assets (excluding inventory and prepayments)}}{\text{Current liabilities (excluding bank overdraft)}}$
Rate of return on assets	$\frac{\text{Profit before income tax} + \text{interest expense}}{\text{Average total assets}}$
Times interest earned*	$\frac{\text{Profit before income tax} + \text{interest expense}}{\text{Interest costs (expensed and capitalised)}}$
Earnings per ordinary share*	$\frac{\text{Profit (after income tax)} - \text{preference dividends}}{\text{Weighted average number of ordinary shares issued}}$
Price/earnings*	$\frac{\text{Market price per ordinary shares}}{\text{Earnings per ordinary share}}$
Dividend yield*	$\frac{\text{Annual dividend per ordinary share}}{\text{Market price per ordinary share}}$

* [From: Hoggett, J., Edwards, L., & Medlin, J. (2006). *Accounting* (6th ed.). Brisbane: John Wiley, p. 1079 © John Wiley & Sons Australia, Ltd. Reprinted with permission.]

A = at the prevailing company rate (e.g. 30%)

Results from calculations may be presented either as a percentage or as a ratio, to two decimal places.

Cost volume profit analysis for profit planning

Basic cost profit concepts

$$\text{Total costs} = \text{Total variable costs} + \text{Total fixed costs}$$

$$\text{Unit cost} = \frac{\text{Total cost}}{\text{Number of units}}$$

$$\text{Net profit} = \text{Total revenue} - \text{Total costs}$$

Break-even is where profit = zero; therefore Total revenue = Total costs

$$\text{Profit} = (\text{SP} \times \text{QS}) - [(\text{VC} \times \text{QS}) + \text{FC}]$$

$$\text{SP} = \text{Selling Price per unit}$$

$$\text{QS} = \text{Quantity Sold}$$

$$\text{VC} = \text{Variable Cost}$$

$$\text{FC} = \text{Fixed Cost}$$

Calculation of contribution margin

$$\text{Contribution margin per unit} = \text{Selling Price per unit} - \text{Variable Costs per unit}$$

or

$$\text{Total contribution margin} = \text{Total revenue} - \text{Total Variable Costs}$$

or

$$\text{Contribution margin ratio} = \frac{\text{Contribution margin per unit}}{\text{Selling Price per unit}}$$

Break-even point for a single product firm

$$\text{Break-even point in units} = \frac{\text{Total Fixed Costs (TFC)}}{\text{Contribution margin}}$$

or

$$\text{Break-even point (in sales dollars)} = \frac{\text{Total Fixed Costs (TFC)}}{\text{Contribution margin ratio}}$$

Break-even point in total units in multi-product firm

$$\text{Break-even point in units} = \frac{\text{Total Fixed Costs (TFC)}}{\text{Weighted average contribution margin per unit}}$$

Weighted average contribution margin

Weighted average contribution margin = $\Sigma(\text{Contribution margin per unit} \times \text{Sales mix per unit})$

Where Σ **means** the sum of a set of numbers

Sales mix = The sales mix is the number of units sold of a given product relative to the total units sold by the firm.

For example: If a company sells 6,000 units of product A and 4,000 units of product B, the sales mix is 60% A and 40% B.

Forecast revenue for target net profit

Forecast revenue (in sales dollars) = Total Variable Costs + Total Fixed Costs + Target net profit

Forecast target revenue (in units) = $\frac{\text{Total Fixed Costs (TFC)} + \text{Target net profit}}{\text{Contribution margin per unit}}$

Margin of safety

Margin of safety = Actual or budgeted sales LESS break-even sales

Margin of safety % = $\frac{\text{Margin of safety in dollars}}{\text{Total actual/budgeted sales}}$

Standard cost accounting and variance analysis

Standard cost per unit = Standard input quantity allowed per output unit x Standard price per input unit

Direct material variance

Price variance = (Actual Price of input – Standard Price of input) x Actual Quantity of input Purchased
[i.e. (AP – SP) x AQP]

or

(Actual Price per input unit x Actual Quantity Purchased) – (Standard Price per input unit x Actual Quantity Purchased)
[i.e. (AP x AQP) – (SP x AQP)]

Usage variance = (Actual Quantity of input Issued – Standard Quantity of input Allowed for Actual Output) x Standard Price of input
[i.e. (AQI – SQA*) x SP]

SQA formula: * (Standard Quantity per unit x Actual Output in units produced)
SQA = (SQ X AO)

or

(Standard Price of input x Actual Quantity of input Issued) – (Standard Price of input x Standard Quantity of input Allowed for actual output)
[i.e. (SP x AQI) – (SP x SQA)]

Direct labour variances

Rate variance = (Actual Rate per Direct Labour Hour worked – Standard Rate per Direct Labour Hour worked) x Actual Direct Labour Hours worked
[i.e. (AR – SR) x ADLH]

or

(Actual Rate per Direct Labour Hour worked x Actual Direct Labour Hours worked) – (Standard Rate per Direct Labour Hour worked x Actual Direct Labour Hours worked)
[i.e. (AR x ADLH) – (SR x ADLH)]

Efficiency variance = (Actual Direct Labour Hours worked – Standard Direct Labour Hours Allowed for Actual Output) x Standard Rate per Direct Labour Hour
[i.e. (ADLH – SDLHA**) x SR]

SDLHA formula: ** (Standard Direct Labour Hour Allowed per unit x Actual Output in units produced)
SDLHA = (SDLH X AO)

or

(Standard Rate per Direct Labour Hour x Actual Direct Labour Hours worked) – (Standard Rate per Direct Labour Hour x Standard Direct Labour Hours Allowed for actual output)
[i.e. (SR x ADLH) – (SR x SDLHA)]

Capital budgeting

Net present value (NPV) method (time value of money)

Table A.4: Present value of an ordinary annuity of \$1 at the end of future periods

Periods	2%	3%	4%	5%	6%	8%	10%	12%	16%	20%
1	0.9804	0.9709	0.9615	0.9524	0.9434	0.9259	0.9091	0.8929	0.8621	0.8333
2	1.9416	1.9135	1.8861	1.8594	1.8334	1.7833	1.7355	1.6901	1.6052	1.5278
3	2.8839	2.8286	2.7751	2.7232	2.6730	2.5771	2.4869	2.4018	2.2459	2.1065
4	3.8077	3.7171	3.6299	3.5460	3.4651	3.3121	3.1699	3.0373	2.7982	2.5887
5	4.7135	4.5797	4.4518	4.3295	4.2124	3.9927	3.7908	3.6048	3.2743	2.9906
6	5.6014	5.4172	5.2421	5.0757	4.9173	4.6229	4.3553	4.1114	3.6847	3.3255
7	6.4720	6.2303	6.0021	5.7864	5.5824	5.2064	4.8684	4.5638	4.0386	3.6016
8	7.3255	7.0197	6.7327	6.4632	6.2098	5.7466	5.3349	4.9676	4.3436	3.8273
9	8.1622	7.7861	7.4353	7.1078	6.8017	6.2469	5.7590	5.3282	4.6065	4.0310
10	8.9826	8.5302	8.1109	7.7217	7.3601	6.7101	6.1446	5.6502	4.8332	4.1925
11	9.7868	9.2526	8.7605	8.3064	7.8869	7.1390	6.4951	5.9377	5.0286	4.3271
12	10.5753	9.9540	9.3851	8.8633	8.3838	7.5361	6.8137	6.1944	5.1971	4.4392
13	11.3484	10.6350	9.9856	9.3936	8.8527	7.9038	7.1034	6.4235	5.3423	4.5327
14	12.1062	11.2961	10.5631	9.8986	9.2950	8.2442	7.3667	6.6282	5.4675	4.6106
15	12.8493	11.9379	11.1184	10.3797	9.7122	8.5595	7.6061	6.8109	5.5755	4.6755
16	13.5777	12.5611	11.6523	10.8378	10.1059	8.8514	7.8237	6.9740	5.6685	4.7296
17	14.2919	13.1661	12.1657	11.2741	10.4773	9.1216	8.0216	7.1196	5.7487	4.7746
18	14.9920	13.7535	12.6593	11.6896	10.8276	9.3719	8.2014	7.2497	5.8178	4.8122
19	15.6785	14.3238	13.1339	12.0853	11.1581	9.6036	8.3649	7.3658	5.8775	4.8435
20	16.3514	14.8775	13.5903	12.4622	11.4699	9.8181	8.5136	7.4694	5.9288	4.8696
25	19.5235	17.4131	15.6221	14.0939	12.7834	10.6748	9.0770	7.8431	6.0971	4.9476
30	22.3965	19.6004	17.2920	15.3725	13.7648	11.2578	9.4269	8.0552	6.1772	4.9789

[From: Hoggett, J., Edwards, L., & Medlin, J. (2006). *Accounting* (6th ed.). Brisbane: John Wiley, p. 1105
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Table A.3: Present value of \$1 at the end of future periods

Periods	2%	3%	4%	5%	6%	8%	10%	12%	16%	20%
1	0.9804	0.9709	0.9615	0.9524	0.9434	0.9259	0.9091	0.8929	0.8621	0.8333
2	0.9612	0.9426	0.9246	0.9070	0.8900	0.8573	0.8264	0.7972	0.7432	0.6944
3	0.9423	0.9151	0.8890	0.8638	0.8396	0.7938	0.7513	0.7118	0.6407	0.5787
4	0.9238	0.8885	0.8548	0.8227	0.7921	0.7350	0.6830	0.6355	0.5523	0.4823
5	0.9057	0.8626	0.8219	0.7835	0.7473	0.6806	0.6209	0.5674	0.4761	0.4019
6	0.8880	0.8375	0.7903	0.7462	0.7050	0.6302	0.5645	0.5066	0.4104	0.3349
7	0.8706	0.8131	0.7599	0.7107	0.6651	0.5835	0.5132	0.4523	0.3538	0.2791
8	0.8535	0.7894	0.7307	0.6768	0.6274	0.5403	0.4665	0.4039	0.3050	0.2326
9	0.8368	0.7664	0.7026	0.6446	0.5919	0.5002	0.4241	0.3606	0.2630	0.1938
10	0.8203	0.7441	0.6756	0.6139	0.5584	0.4632	0.3855	0.3220	0.2267	0.1615
11	0.8043	0.7224	0.6496	0.5847	0.5268	0.4289	0.3505	0.2875	0.1954	0.1346
12	0.7885	0.7014	0.6246	0.5568	0.4970	0.3971	0.3186	0.2567	0.1685	0.1122
13	0.7730	0.6810	0.6006	0.5303	0.4688	0.3677	0.2897	0.2292	0.1452	0.0925
14	0.7579	0.6611	0.5775	0.5051	0.4423	0.3405	0.2633	0.2046	0.1252	0.0779
15	0.7430	0.6419	0.5553	0.4810	0.4173	0.3152	0.2394	0.1827	0.1079	0.0649
16	0.7284	0.6232	0.5339	0.4581	0.3936	0.2919	0.2176	0.1631	0.0930	0.0541
17	0.7142	0.6050	0.5134	0.4363	0.3714	0.2703	0.1978	0.1456	0.0802	0.0451
18	0.7002	0.5874	0.4936	0.4155	0.3503	0.2502	0.1799	0.1300	0.0691	0.0376
19	0.6864	0.5703	0.4746	0.3957	0.3305	0.2317	0.1635	0.1161	0.0596	0.0313
20	0.6730	0.5537	0.4564	0.3769	0.3118	0.2145	0.1486	0.1037	0.0514	0.0261
25	0.6095	0.4776	0.3751	0.2953	0.2330	0.1460	0.0923	0.0588	0.0245	0.0105
30	0.5521	0.4120	0.3083	0.2314	0.1741	0.0994	0.0573	0.0334	0.0116	0.0042

[From: Hoggett, J., Edwards, L., & Medlin, J. (2006). *Accounting* (6th ed.). Brisbane: John Wiley, p. 1103
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Capital budgeting

Net Present Value (NPV)

$$\text{Present value} = \frac{\text{Net Cash Flow}}{(1 + i)^n}$$

i = Interest rate
n = Number of periods

$$\text{NPV} = \text{Present Value of Future Net Cash Flows} - \text{Present Value of Cost of Project}$$

Payback period

The payback period calculates the period of time needed for any investment to pay for itself. This method does not use the time value of money.

The formula, where Annual Net Cash Flows are constant, is:

$$\text{Payback period} = \frac{\text{Initial cost of investment}}{\text{Annual Net Cash Flows}}$$

Final figures are to be specified in months and years.

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Page 2 and 6

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