



Government of **Western Australia**
Curriculum Council



ACCOUNTING AND FINANCE

Stage 3

WACE Examination 2010

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	$\frac{\text{Cost of sales}}{\text{Average cost of inventory}}$
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
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A = at the prevailing company rate (e.g. 30%)

Results from calculations may be presented either as a percentage or as a ratio.

Cost volume profit analysis for profit planning

Basic cost profit concepts

Total costs = Total variable costs + Total fixed costs

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

Net profit = Total revenue – Total costs

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

Calculation of contribution margin

Contribution margin per unit = Selling price per unit – Variable costs per unit

or

Total contribution margin = Total revenue – Total variable costs

or

Contribution margin ratio = $\frac{\text{Contribution margin}}{\text{Revenue}}$

Break-even point for a single product firm

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

or

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

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

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) = $\frac{\text{Total fixed costs (TFC)} + \text{Target net profit}}{\text{Contribution margin per unit}}$

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**

Price variance = $(\text{Actual Price of input} - \text{Standard Price of input}) \times \text{Actual Quantity of input Purchased}$
[i.e. $(AP - SP) \times AQP$]

or

$(\text{Actual Price per input unit} \times \text{Actual Quantity Purchased}) - (\text{Standard Price per input unit} \times \text{Actual Quantity Purchased})$
[i.e. $((AP) \times (AQP)) - ((SP) \times (AQP))$]

Usage Variance

Usage variance = $(\text{Actual Quantity of input Issued} - \text{Standard Quantity of input Allowed for actual output}) \times \text{Standard Price of input}$
[i.e. $(AQI - SQA) \times SP$]

or

$(\text{Standard Price of input} \times \text{Standard Quantity of input Allowed for actual output}) - (\text{Standard Price of input} \times \text{Actual Quantity of input Issued})$
[i.e. $((SP) \times (SQA)) - ((SP) \times (AQI))$]

Direct labour variances**Rate Variance**

Rate variance = $(\text{Actual Rate per Direct Labour Hour worked} - \text{Standard Rate per Direct Labour Hour worked}) \times \text{Actual Direct Labour Hours worked}$
[i.e. $(AR - SR) \times ADLH$]

or

$(\text{Actual Rate per Direct Labour Hour worked} \times \text{Actual Direct Labour Hours worked}) - (\text{Standard Rate per Direct Labour Hour worked} \times \text{Actual Direct Labour Hours worked})$
[i.e. $((AR) \times (ADLH)) - ((SR) \times (ADLH))$]

Efficiency Variance

Efficiency variance = $(\text{Actual Direct Labour Hours worked} - \text{Standard Direct Labour Hours Allowed for actual output}) \times \text{Standard Rate per Direct Labour Hour}$
[i.e. $(ADLH - SDLHA) \times SP$]

or

$(\text{Standard Rate per Direct Labour Hour} \times \text{Standard Direct Labour Hours Allowed for actual output}) - (\text{Standard Rate per Direct Labour Hour} \times \text{Actual Direct Labour Hours worked})$
[i.e. $((SR) \times (SDLHA)) - (SR) \times (ADLH))$]

Fixed manufacturing overhead variances

Fixed manufacturing overhead spending variance

Fixed manufacturing overhead spending variance = **Actual Fixed Manufacturing Overhead – Budgeted Fixed Manufacturing Overhead**
[i.e. AFMOH – BFMOH]

Fixed manufacturing overhead capacity variance

Fixed manufacturing overhead capacity variance = **Budgeted Fixed Manufacturing Overhead – (Standard Fixed Manufacturing Overhead Rate per activity unit x Standard Activity Allowed for actual output)**
[i.e. BFMOH – (SFMOHR) x (SAA)]

Variable manufacturing overhead variances

Variable manufacturing overhead spending variance

Variable manufacturing overhead spending variance = **Actual Variable Manufacturing Overhead – Flexible Budget Allowance for Variable Manufacturing Overhead**
Where Flexible Budget Allowance for Variable Manufacturing Overhead=
(Standard Variable Manufacturing Overhead Rate per activity unit x actual activity)
[i.e. SVMOHR x actual activity]

Variable manufacturing overhead efficiency variance

Variable manufacturing overhead efficiency variance = **Flexible Budget Allowance for Variable Manufacturing Overhead – (Standard Variable Manufacturing Overhead Rate per activity unit x Standard Activity Allowed for actual output)**
[i.e. FBAVMOH – (SVMOHR) x (SAA)]

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)

NPV = Present Value of Future Net cash Flows – 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:

$$\text{Payback period} = \frac{\text{Initial cost of investment}}{\text{Annual net cash flows}}$$

Return on average investment method/Accounting rate of return

The average investment is calculated as:

$$\text{Average investment} = \frac{\text{Initial investment} + \text{Residual value}}{2}$$

Return on average investment is calculated as:

$$\text{Return on average investment} = \frac{\text{Average net profit}}{\text{Average investment}}$$

ACKNOWLEDGEMENTS

Table from: Hoggett, J., Edwards, L., & Medlin, J. (2006). *Accounting* (6th ed.). Brisbane: John Wiley, pp. 1103 & 1105.

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*Published by the Curriculum Council of Western Australia
27 Walters Drive
OSBORNE PARK WA 6017*