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

WACE
Western Australian Certificate of Education

Western Australian Certificate of Education
Examination, 2013

ACCOUNTING AND FINANCE

Stage 3

SPECIFICATIONS BOOKLET

 Ref: 13-004

Calculation for depreciation

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

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	$\frac{\text{Profit before income tax + interest expense}}{\text{Average total assets}}$
Times interest earned*	$\frac{\text{Profit before income tax + interest expense}}{\text{Interest costs (expensed and capitalised)}}$
Earnings per ordinary share*	$\frac{\text{Profit (after income tax) – preference dividends}}{\text{Weighted average number of ordinary shares issued}}$
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

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

Standard abbreviations include:

SP = Selling Price

QS = Quantity Sold

VC = Variable Costs

TVC= Total Variable Costs

FC = Fixed Costs

TFC= Total Fixed Costs

TC= Total VC + Total FC

Basic cost profit concepts

Profit = (SP x QS) – [(VC x QS) + **TFC**]

Total costs = **TVC + TFC**

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

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 = **SP** per unit – **VC** per unit

or

Total contribution margin = Total revenue – **TVC**

or

$$\text{Contribution margin ratio} = \frac{\text{Contribution margin per unit}}{\textbf{SP} \text{ per unit}}$$

Break-even point for a single product firm

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

or

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

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

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

Weighted average contribution margin

Weighted average contribution margin = ∑(Contribution margin per unit x 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) = **TVC + TFC** + Target net profit

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

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 = (**A**ctual **P**rice of input – **S**tandard **P**rice of input) x **A**ctual **Q**uantity of input **P**urchased
[i.e. (AP – SP) x AQP]

or

(**A**ctual **P**rice per input unit x **A**ctual **Q**uantity **P**urchased) – (**S**tandard **P**rice per input unit x **A**ctual **Q**uantity **P**urchased)
[i.e. (AP x AQP) – (SP x AQP)]

Usage variance = (**A**ctual **Q**uantity of input **I**ssued – **S**tandard **Q**uantity of input **A**llowed for **A**ctual **O**utput) x **S**tandard **P**rice of input
[i.e. (AQI – SQA*) x SP]

SQA formula: * (**S**tandard **Q**uantity per unit x **A**ctual **O**utput in units produced)
SQA = (SQ X AO)

or

(**S**tandard **P**rice of input **x** **A**ctual **Q**uantity of input **I**ssued) –
(**S**tandard **P**rice of input **x** **S**tandard **Q**uantity of input **A**llowed for actual output)
[i.e. (SP x AQI) – (SP x SQA)]

Direct labour variances

Rate variance = (**A**ctual **R**ate per Direct Labour Hour worked – **S**tandard **R**ate per Direct Labour Hour worked) x **A**ctual **D**irect **L**abour **H**ours worked
[i.e. (AR – SR) x ADLH]

or

(**A**ctual **R**ate per Direct Labour Hour worked x **A**ctual **D**irect **L**abour **H**ours worked) – (**S**tandard **R**ate per Direct Labour Hour worked x **A**ctual **D**irect **L**abour **H**ours worked)
[i.e. (AR x ADLH) – (SR x ADLH)]

Efficiency variance = (**A**ctual **D**irect **L**abour **H**ours worked – **S**tandard **D**irect **L**abour **H**ours **A**llowed for **A**ctual **O**utput) x **S**tandard **R**ate per Direct Labour Hour
[i.e. (ADLH – SDLHA**) x SR]

SDLHA formula: ** (**S**tandard **D**irect **L**abour **H**our **A**llowed per unit x **A**ctual **O**utput in units produced)
SDLHA = (SDLH X AO)

or

(**S**tandard **R**ate per Direct Labour Hour **x** **A**ctual **D**irect **L**abour **H**ours worked) – (**S**tandard **R**ate per Direct Labour Hour **x** **S**tandard **D**irect **L**abour **H**ours **A**llowed 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

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

Capital budgeting

Net Present Value (NPV)

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

i = Interest rate
n = Number of periods

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:

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

Final figures are to be specified in months and years.

ACKNOWLEDGEMENTS

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

Capital budgeting
Net present value (NPV) method (time value of money)
Hoggett, J., Edwards, L., & Medlin, J. (2006). *Accounting* (6th ed.). Brisbane: John Wiley, p. 1105. © John Wiley & Sons Australia, Ltd. Reprinted with permission

Table A.3: Present value of $1 at the end of future periods
Hoggett, J., Edwards, L., & Medlin, J. (2006). *Accounting* (6th ed.). Brisbane: John Wiley, p. 1103. © John Wiley & Sons Australia, Ltd. Reprinted with permission.]

Published by the School Curriculum and Standards Authority of Western Australia
27 Walters Drive
OSBORNE PARK WA 6017