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

ACCOUNTING AND FINANCE ATAR COURSE

SPECIFICATIONS BOOKLET

2023

Calculation for depreciation

Straight-line method

Depreciation expense per annum $= \dfrac{\text{Original cost} - \text{Residual value}}{\text{Useful life}}$

or

$= \dfrac{\text{Depreciable amount}}{\text{Useful life}}$

Reducing/Diminishing balance method

Depreciation expense = Carrying amount × Depreciation rate

Carrying amount = Original cost – Accumulated depreciation

Preparation of ratios

Results from calculations should be given to two decimal places.

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

A: Income tax is to be charged at the specified company rate
B: Net sales = Sales revenue – Sales returns and allowances – Discount allowed
C: Cost of sales (total) = Cost of sales (account) + Import duties + Freight inwards – Discount received

Cost accounting and variance analysis

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

$$\text{Predetermined overhead recovery rate} = \frac{\text{Total estimated manufacturing overheads}}{\text{Total estimated allocation base}}$$

Cost of production/service = Direct materials + Direct labour + Overheads

Selling/quotation price = Cost + (Mark-up % × Cost)

Direct material variances

Price variance = (AP – SP) × AQP
i.e. (Actual price of input – Standard price of input) × Actual quantity of input purchased

Usage variance = (AQI – SQA) × SP
i.e. (Actual quantity of input Issued – Standard quantity of input allowed for actual output) × Standard price of input

where SQA = SQ × AO
i.e. Standard quantity per unit × Actual output in units produced

Direct labour variances

Rate variance = (AR – SR) × ADLH
i.e. (Actual rate per direct labour hour worked – Standard rate per direct labour hour worked) × Actual direct labour hours worked

Efficiency variance = (ADLH – SDLHA) × SR
i.e. (Actual direct labour hours worked – Standard direct labour hours allowed for actual output) × Standard rate per direct labour hour

where SDLHA = SDLH × AO
i.e. Standard direct labour hours allowed per unit × Actual output in units produced

Cost volume profit analysis for profit planning

Standard abbreviations include:

FC = Fixed costs
OC = Opportunity costs
QS = Quantity sold or budgeted
SP = Selling price
TC = Total costs
TFC = Total fixed costs
TVC = Total variable costs
TR = Total revenue
VC = Variable costs

Basic cost profit concepts

$$\text{Profit} = \text{TR} - \text{TC}$$

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

$$\text{TC} = \text{TVC} + \text{TFC}$$

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

Calculation of contribution margin

$$\text{Contribution margin per unit} = \text{SP per unit} - \text{VC per unit}$$

or

$$\text{Total contribution margin} = \text{TR} - \text{TVC}$$

or

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

Break-even point for a single product firm

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

or

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

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

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

Weighted average contribution margin

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

where $\sum$ **means** the sum of a set of numbers

$$\text{Sales mix \%} = \frac{\text{number of units sold of a given product}}{\text{total units sold of all products}} \times 100$$

Forecast revenue for target profit

$$\text{Forecast revenue (in sales dollars)} = \text{TVC} + \text{TFC} + \text{Target profit}$$

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

Margin of safety

$$\text{Margin of safety} = \text{Actual or budgeted sales} - \text{break-even sales}$$

$$\text{Margin of safety \%} = \frac{\text{Margin of safety in dollars}}{\text{Total actual/budgeted sales}} \times 100$$

Special order

Gain/Loss = (SP x QS) – (VC x QS) – new FC – OC
i.e. Special order income – Special order variable costs – New or additional fixed costs – Opportunity costs

where OC = Units forgone in usual production × Usual contribution margin

Capital investment/budgeting

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

Present value of $1 at the end of future periods

Periods	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%
1	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8621
2	0.9612	0.9426	0.9246	0.9070	0.8900	0.8734	0.8573	0.8417	0.8264	0.7972	0.7695	0.7432
3	0.9423	0.9151	0.8890	0.8638	0.8396	0.8163	0.7938	0.7722	0.7513	0.7118	0.6750	0.6407
4	0.9238	0.8885	0.8548	0.8227	0.7921	0.7629	0.7350	0.7084	0.6830	0.6355	0.5921	0.5523
5	0.9057	0.8626	0.8219	0.7835	0.7473	0.7130	0.6806	0.6499	0.6209	0.5674	0.5194	0.4761
6	0.8880	0.8375	0.7903	0.7462	0.7050	0.6663	0.6302	0.5963	0.5645	0.5066	0.4556	0.4104
7	0.8706	0.8131	0.7599	0.7107	0.6651	0.6227	0.5835	0.5470	0.5132	0.4523	0.3996	0.3538
8	0.8535	0.7894	0.7307	0.6768	0.6274	0.5820	0.5403	0.5019	0.4665	0.4039	0.3506	0.3050
9	0.8368	0.7664	0.7026	0.6446	0.5919	0.5439	0.5002	0.4604	0.4241	0.3606	0.3075	0.2630
10	0.8203	0.7441	0.6756	0.6139	0.5584	0.5083	0.4632	0.4224	0.3855	0.3220	0.2697	0.2267
11	0.8043	0.7224	0.6496	0.5847	0.5268	0.4751	0.4289	0.3875	0.3505	0.2875	0.2366	0.1954
12	0.7885	0.7014	0.6246	0.5568	0.4970	0.4440	0.3971	0.3555	0.3186	0.2567	0.2076	0.1685
13	0.7730	0.6810	0.6006	0.5303	0.4688	0.4150	0.3677	0.3262	0.2897	0.2292	0.1821	0.1452
14	0.7579	0.6611	0.5775	0.5051	0.4423	0.3878	0.3405	0.2992	0.2633	0.2046	0.1597	0.1252
15	0.7430	0.6419	0.5553	0.4810	0.4173	0.3624	0.3152	0.2745	0.2394	0.1827	0.1401	0.1079
16	0.7284	0.6232	0.5339	0.4581	0.3936	0.3387	0.2919	0.2519	0.2176	0.1631	0.1229	0.0930
17	0.7142	0.6050	0.5134	0.4363	0.3714	0.3166	0.2703	0.2311	0.1978	0.1456	0.1078	0.0802
18	0.7002	0.5874	0.4936	0.4155	0.3503	0.2959	0.2502	0.2120	0.1799	0.1300	0.0946	0.0691
19	0.6864	0.5703	0.4746	0.3957	0.3305	0.2765	0.2317	0.1945	0.1635	0.1161	0.0829	0.0596
20	0.6730	0.5537	0.4564	0.3769	0.3118	0.2584	0.2145	0.1784	0.1486	0.1037	0.0728	0.0514
21	0.6598	0.5375	0.4388	0.3589	0.2942	0.2415	0.1987	0.1637	0.1351	0.0926	0.0638	0.0443
22	0.6468	0.5219	0.4220	0.3418	0.2775	0.2257	0.1839	0.1502	0.1228	0.0826	0.0560	0.0382
23	0.6342	0.5067	0.4057	0.3256	0.2618	0.2109	0.1703	0.1378	0.1117	0.0738	0.0491	0.0329
24	0.6217	0.4919	0.3901	0.3101	0.2470	0.1971	0.1577	0.1264	0.1015	0.0659	0.0431	0.0284
25	0.6095	0.4776	0.3751	0.2953	0.2330	0.1842	0.1460	0.1160	0.0923	0.0588	0.0378	0.0245

Present value of an ordinary annuity of $1 at the end of future periods

Periods	2%	3%	4%	5%	6%	7%	8%	9%	10%	12%	14%	16%
1	0.9804	0.9709	0.9615	0.9524	0.9434	0.9346	0.9259	0.9174	0.9091	0.8929	0.8772	0.8621
2	1.9416	1.9135	1.8861	1.8594	1.8334	1.8080	1.7833	1.7591	1.7355	1.6901	1.6467	1.6052
3	2.8839	2.8286	2.7751	2.7232	2.6730	2.6243	2.5771	2.5313	2.4869	2.4018	2.3216	2.2459
4	3.8077	3.7171	3.6299	3.5460	3.4651	3.3872	3.3121	3.2397	3.1699	3.0373	2.9137	2.7982
5	4.7135	4.5797	4.4518	4.3295	4.2124	4.1002	3.9927	3.8897	3.7908	3.6048	3.4331	3.2743
6	5.6014	5.4172	5.2421	5.0757	4.9173	4.7665	4.6229	4.4859	4.3553	4.1114	3.8887	3.6847
7	6.4720	6.2303	6.0021	5.7864	5.5824	5.3893	5.2064	5.0330	4.8684	4.5638	4.2883	4.0386
8	7.3255	7.0197	6.7327	6.4632	6.2098	5.9713	5.7466	5.5348	5.3349	4.9676	4.6389	4.3436
9	8.1622	7.7861	7.4353	7.1078	6.8017	6.5152	6.2469	5.9952	5.7590	5.3282	4.9464	4.6065
10	8.9826	8.5302	8.1109	7.7217	7.3601	7.0236	6.7101	6.4177	6.1446	5.6502	5.2161	4.8332
11	9.7868	9.2526	8.7605	8.3064	7.8869	7.4987	7.1390	6.8052	6.4951	5.9377	5.4527	5.0286
12	10.5753	9.9540	9.3851	8.8633	8.3838	7.9427	7.5361	7.1607	6.8137	6.1944	5.6603	5.1971
13	11.3484	10.6350	9.9856	9.3936	8.8527	8.3577	7.9038	7.4869	7.1034	6.4235	5.8424	5.3423
14	12.1062	11.2961	10.5631	9.8986	9.2950	8.7455	8.2442	7.7862	7.3667	6.6282	6.0021	5.4675
15	12.8493	11.9379	11.1184	10.3797	9.7122	9.1079	8.5595	8.0607	7.6061	6.8109	6.1422	5.5755
16	13.5777	12.5611	11.6523	10.8378	10.1059	9.4466	8.8514	8.3126	7.8237	6.9740	6.2651	5.6685
17	14.2919	13.1661	12.1657	11.2741	10.4773	9.7632	9.1216	8.5436	8.0216	7.1196	6.3729	5.7487
18	14.9920	13.7535	12.6593	11.6896	10.8276	10.0591	9.3719	8.7556	8.2014	7.2497	6.4674	5.8178
19	15.6785	14.3238	13.1339	12.0853	11.1581	10.3356	9.6036	8.9501	8.3649	7.3658	6.5504	5.8775
20	16.3514	14.8775	13.5903	12.4622	11.4699	10.5940	9.8181	9.1285	8.5136	7.4694	6.6231	5.9288
21	17.0112	15.4150	14.0292	12.8212	11.7641	10.8355	10.0168	9.2922	8.6487	7.5620	6.6870	5.9731
22	17.6580	15.9369	14.4511	13.1630	12.0416	11.0612	10.2007	9.4424	8.7715	7.6446	6.7429	6.0113
23	18.2922	16.4436	14.8568	13.4886	12.3034	11.2722	10.3711	9.5802	8.8832	7.7184	6.7921	6.0442
24	18.9139	16.9355	15.2470	13.7986	12.5504	11.4693	10.5288	9.7066	8.9847	7.7843	6.8351	6.0726
25	19.5235	17.4131	15.6221	14.0939	12.7834	11.6536	10.6748	9.8226	9.0770	7.8431	6.8729	6.0971

Net present value (NPV)

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

where i = Interest rate
n = Number of periods

NPV = Present value of future net cash flows – Present value of cost of project

Payback period

Where annual net cash flows are constant:

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

Results from calculations are to be presented in years and months.

This document is valid for teaching and examining until 31 December 2023.

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303 Sevenoaks Street
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