AICPA & CIMA
Together as the Association of International Certified Professional Accountants

Tables and formulae provided in your exam

To check which tables and formulae will be provided in your exam for Certificate in Business Accounting, and the 2019 Professional Qualification please see details and links below:

Certificate in Business Accounting

BA1 tables and formulae

The following tables and formulae will be provided in your BA1 objective test exam:

Present value table

Cumulative present value table

BA1 formulae sheet

BA2 tables and formulae

The following tables and formulae will be provided in your BA2 objective test exam:

Present value table

Cumulative present value table

Normal distribution table

Linear regression formula

Please note: There are none provided in the BA3 and BA4 exams.

AICPA & CIMA
Together as the Association of International Certified Professional Accountants

2019 Professional Qualification

Tables and formulae will be provided for the following exams:

Operational level‑P1 and the case study exam

Management level‑P2, F2 and the management /gateway case study exam

Strategic level‑P3, F3 and the case study exam

Please note: There are none provided in the E1, F1, E2 and E3 exams.

Details of tables and formulae for each exam are below:

Operational level

P1 ‑ tables and formulae

The following tables and formulae will be provided in your P1 objective test exam:

Present value table

Cumulative present value table

Normal distribution table

P1 formulae sheet

Operational case study exam ‑ tables and formulae

The following tables will be provided in your Operational case study exam:

Present value table

Cumulative present value table

Normal distribution table

Please note that for 2019 syllabus assessments, CIMA has set the cut-off date of 1 December in the year preceding as the date by which International Accounting Standards, International Financial Reporting Standards and Exposure Drafts become relevant for the purposes of assessment. So, for example, objective tests taken during 2020 are set in accordance with legislation effective as at 1 December 2019. However, in case study exams CIMA gives credit for referring to either the current or the new standard. This is because organisations often adopt IFRS before they are required to, so a student might be more familiar with the new standard than the old.

AICPA & CIMA
Together as the Association of International Certified Professional Accountants

Management level

P2 – tables and formulae

The following tables and formulae will be provided in your P2 objective test exam:

Present value table

Cumulative present value table

Normal distribution table

P2 formulae sheet

F2 – tables and formulae

The following tables and formulae will be provided in your F2 objective test exam:

Present value table

Cumulative present value table

Normal distribution table

F2 formulae sheet

Management case study exam - tables and formulae

The following tables will be provided in your Management case study exam:

Present value table

Cumulative present value table

Normal distribution table

Please note that for 2019 syllabus assessments, CIMA has set the cut-off date of 1 December in the year preceding as the date by which International Accounting Standards, International Financial Reporting Standards and Exposure Drafts become relevant for the purposes of assessment. So, for example, objective tests taken during 2020 are set in accordance with legislation effective as at 1 December 2019. However, in case study exams CIMA gives credit for referring to either the current or the new standard. This is because organisations often adopt IFRS before they are required to, so a student might be more familiar with the new standard than the old.

AICPA & CIMA
Together as the Association of International Certified Professional Accountants

Strategic level

P3 – tables and formulae

The following tables will be provided in your P3 objective test exam:

Present value table

Cumulative present value table

Normal distribution table

F3 – tables and formulae

The following tables and formulae will be provided in your F3 objective test exam:

Present value table

Cumulative present value table

Normal distribution table

F3 formulae sheet

Strategic case study exam - tables and formulae

The following tables will be provided in your Strategic case study exam:

Present value table

Cumulative present value table

Normal distribution table

Please note that for 2019 syllabus assessments, CIMA has set the cut-off date of 1 December in the year preceding as the date by which International Accounting Standards, International Financial Reporting Standards and Exposure Drafts become relevant for the purposes of assessment. So, for example, objective tests taken during 2020 are set in accordance with legislation effective as at 1 December 2019. However, in case study exams CIMA gives credit for referring to either the current or the new standard. This is because organisations often adopt IFRS before they are required to, so a student might be more familiar with the new standard than the old.

CUMULATIVE PRESENT VALUE TABLE

Cumulative present value of $1 per annum, Receivable or Payable at the end of each year for *n* years $\frac{1-(1+r)^{-n}}{r}$

Periods (*n*)	Interest rates (*r*)									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	1.970	1.942	1.913	1.886	1.859	1.833	1.808	1.783	1.759	1.736
3	2.941	2.884	2.829	2.775	2.723	2.673	2.624	2.577	2.531	2.487
4	3.902	3.808	3.717	3.630	3.546	3.465	3.387	3.312	3.240	3.170
5	4.853	4.713	4.580	4.452	4.329	4.212	4.100	3.993	3.890	3.791
6	5.795	5.601	5.417	5.242	5.076	4.917	4.767	4.623	4.486	4.355
7	6.728	6.472	6.230	6.002	5.786	5.582	5.389	5.206	5.033	4.868
8	7.652	7.325	7.020	6.733	6.463	6.210	5.971	5.747	5.535	5.335
9	8.566	8.162	7.786	7.435	7.108	6.802	6.515	6.247	5.995	5.759
10	9.471	8.983	8.530	8.111	7.722	7.360	7.024	6.710	6.418	6.145
11	10.368	9.787	9.253	8.760	8.306	7.887	7.499	7.139	6.805	6.495
12	11.255	10.575	9.954	9.385	8.863	8.384	7.943	7.536	7.161	6.814
13	12.134	11.348	10.635	9.986	9.394	8.853	8.358	7.904	7.487	7.103
14	13.004	12.106	11.296	10.563	9.899	9.295	8.745	8.244	7.786	7.367
15	13.865	12.849	11.938	11.118	10.380	9.712	9.108	8.559	8.061	7.606
16	14.718	13.578	12.561	11.652	10.838	10.106	9.447	8.851	8.313	7.824
17	15.562	14.292	13.166	12.166	11.274	10.477	9.763	9.122	8.544	8.022
18	16.398	14.992	13.754	12.659	11.690	10.828	10.059	9.372	8.756	8.201
19	17.226	15.679	14.324	13.134	12.085	11.158	10.336	9.604	8.950	8.365
20	18.046	16.351	14.878	13.590	12.462	11.470	10.594	9.818	9.129	8.514

Periods (*n*)	Interest rates (*r*)									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	1.713	1.690	1.668	1.647	1.626	1.605	1.585	1.566	1.547	1.528
3	2.444	2.402	2.361	2.322	2.283	2.246	2.210	2.174	2.140	2.106
4	3.102	3.037	2.974	2.914	2.855	2.798	2.743	2.690	2.639	2.589
5	3.696	3.605	3.517	3.433	3.352	3.274	3.199	3.127	3.058	2.991
6	4.231	4.111	3.998	3.889	3.784	3.685	3.589	3.498	3.410	3.326
7	4.712	4.564	4.423	4.288	4.160	4.039	3.922	3.812	3.706	3.605
8	5.146	4.968	4.799	4.639	4.487	4.344	4.207	4.078	3.954	3.837
9	5.537	5.328	5.132	4.946	4.772	4.607	4.451	4.303	4.163	4.031
10	5.889	5.650	5.426	5.216	5.019	4.833	4.659	4.494	4.339	4.192
11	6.207	5.938	5.687	5.453	5.234	5.029	4.836	4.656	4.486	4.327
12	6.492	6.194	5.918	5.660	5.421	5.197	4.988	4.793	4.611	4.439
13	6.750	6.424	6.122	5.842	5.583	5.342	5.118	4.910	4.715	4.533
14	6.982	6.628	6.302	6.002	5.724	5.468	5.229	5.008	4.802	4.611
15	7.191	6.811	6.462	6.142	5.847	5.575	5.324	5.092	4.876	4.675
16	7.379	6.974	6.604	6.265	5.954	5.668	5.405	5.162	4.938	4.730
17	7.549	7.120	6.729	6.373	6.047	5.749	5.475	5.222	4.990	4.775
18	7.702	7.250	6.840	6.467	6.128	5.818	5.534	5.273	5.033	4.812
19	7.839	7.366	6.938	6.550	6.198	5.877	5.584	5.316	5.070	4.843
20	7.963	7.469	7.025	6.623	6.259	5.929	5.628	5.353	5.101	4.870

Internal Rate of Return (IRR) **BA 1**

$$R_1 + (R_2 - R_1) \times \frac{NPV_1}{NPV_1 - NPV_2}$$

Least-squares Regression

The linear regression equation of y on x is given by:

$$Y = a + bX \quad \text{or} \quad Y - \bar{Y} = b(X - \bar{X})$$

where

$$b = \frac{\text{Covariance}(XY)}{\text{Variance}(X)} = \frac{n\sum XY - (\sum X)(\sum Y)}{n\sum X^2 - (\sum X)^2}$$

and

$$a = \bar{Y} - b\bar{X}$$

or solve

$$\sum Y = na + b\sum X$$
$$\sum XY = a\sum X + b\sum X^2$$

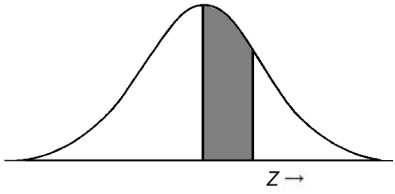
Coefficient of correlation

$$r = \frac{\text{Covariance}(XY)}{\sqrt{\text{Var}(X) \cdot \text{Var}(Y)}} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{(n\sum X^2 - (\sum X)^2)(n\sum Y^2 - (\sum Y)^2)}}$$

$$R(\text{rank}) = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

AREA UNDER THE NORMAL CURVE

This table gives the area under the normal curve between the mean and a point Z standard deviations above the mean. The corresponding area for deviations below the mean can be found by symmetry.



$Z = \frac{(x-\mu)}{\sigma}$	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.0	.0000	.0040	.0080	.0120	.0159	.0199	.0239	.0279	.0319	.0359
0.1	.0398	.0438	.0478	.0517	.0557	.0596	.0636	.0675	.0714	.0753
0.2	.0793	.0832	.0871	.0910	.0948	.0987	.1026	.1064	.1103	.1141
0.3	.1179	.1217	.1255	.1293	.1331	.1368	.1406	.1443	.1480	.1517
0.4	.1554	.1591	.1628	.1664	.1700	.1736	.1772	.1808	.1844	.1879
0.5	.1915	.1950	.1985	.2019	.2054	.2088	.2123	.2157	.2190	.2224
0.6	.2257	.2291	.2324	.2357	.2389	.2422	.2454	.2486	.2518	.2549
0.7	.2580	.2611	.2642	.2673	.2704	.2734	.2764	.2794	.2823	.2852
0.8	.2881	.2910	.2939	.2967	.2995	.3023	.3051	.3078	.3106	.3133
0.9	.3159	.3186	.3212	.3238	.3264	.3289	.3315	.3340	.3365	.3389
1.0	.3413	.3438	.3461	.3485	.3508	.3531	.3554	.3577	.3599	.3621
1.1	.3643	.3665	.3686	.3708	.3729	.3749	.3770	.3790	.3810	.3830
1.2	.3849	.3869	.3888	.3907	.3925	.3944	.3962	.3980	.3997	.4015
1.3	.4032	.4049	.4066	.4082	.4099	.4115	.4131	.4147	.4162	.4177
1.4	.4192	.4207	.4222	.4236	.4251	.4265	.4279	.4292	.4306	.4319
1.5	.4332	.4345	.4357	.4370	.4382	.4394	.4406	.4418	.4430	.4441
1.6	.4452	.4463	.4474	.4485	.4495	.4505	.4515	.4525	.4535	.4545
1.7	.4554	.4564	.4573	.4582	.4591	.4599	.4608	.4616	.4625	.4633
1.8	.4641	.4649	.4656	.4664	.4671	.4678	.4686	.4693	.4699	.4706
1.9	.4713	.4719	.4726	.4732	.4738	.4744	.4750	.4756	.4762	.4767
2.0	.4772	.4778	.4783	.4788	.4793	.4798	.4803	.4808	.4812	.4817
2.1	.4821	.4826	.4830	.4834	.4838	.4842	.4846	.4850	.4854	.4857
2.2	.4861	.4865	.4868	.4871	.4875	.4878	.4881	.4884	.4887	.4890
2.3	.4893	.4896	.4898	.4901	.4904	.4906	.4909	.4911	.4913	.4916
2.4	.4918	.4920	.4922	.4925	.4927	.4929	.4931	.4932	.4934	.4936
2.5	.4938	.4940	.4941	.4943	.4945	.4946	.4948	.4949	.4951	.4952
2.6	.4953	.4955	.4956	.4957	.4959	.4960	.4961	.4962	.4963	.4964
2.7	.4965	.4966	.4967	.4968	.4969	.4970	.4971	.4972	.4973	.4974
2.8	.4974	.4975	.4976	.4977	.4977	.4978	.4979	.4980	.4980	.4981
2.9	.4981	.4982	.4983	.4983	.4984	.4984	.4985	.4985	.4986	.4986
3.0	.4987	.4987	.4987	.4988	.4988	.4989	.4989	.4989	.4990	.4990
3.1	.4990	.4991	.4991	.4991	.4992	.4992	.4992	.4992	.4993	.4993
3.2	.4993	.4993	.4994	.4994	.4994	.4994	.4994	.4995	.4995	.4995
3.3	.4995	.4995	.4995	.4996	.4996	.4996	.4996	.4996	.4996	.4997
3.4	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4997	.4998

LINEAR REGRESSION

BA 2

The linear regression equation of y on x is given by:

$$Y = a + bX \quad \text{or} \quad Y - \bar{Y} = b(X - \bar{X})$$

where

$$b = \frac{\text{Covariance}\,(XY)}{\text{Variance}\,(X)} = \frac{n\sum XY - (\sum X)(\sum Y)}{n\sum X^2 - (\sum X)^2}$$

and

$$a = \bar{Y} - b\bar{X}$$

P1 and P2 Formulae

PROBABILITY

$A \cup B$ = ***A* or *B***. $A \cap B$ = ***A* and *B*** (overlap).

$P(B \mid A)$ = probability of *B*, **given** *A*.

Rules of Addition

If *A* and *B* are mutually exclusive: $P(A \cup B) = P(A) + P(B)$

If *A* and *B* are **not** mutually exclusive: $P(A \cup B) = P(A) + P(B) - P(A \cap B)$

Rules of Multiplication

If *A* and *B* are *independent*: $P(A \cap B) = P(A) * P(B)$

If *A* and *B* are **not** *independent*: $P(A \cap B) = P(A) * P(B \mid A)$

$E(X) = \sum$(probability * payoff)

Quadratic Equations

If $aX^2 + bX + c = 0$ is the general quadratic equation, the two solutions (roots) are given by:

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

DESCRIPTIVE STATISTICS

Arithmetic Mean

$$\bar{x} = \frac{\sum x}{n} \qquad \bar{x} = \frac{\sum fx}{\sum f} \quad \text{(frequency distribution)}$$

Standard Deviation

$$SD = \sqrt{\frac{\sum (x - \bar{x})^2}{n}} \qquad SD = \sqrt{\frac{\sum fx^2}{\sum f} - \bar{x}^2} \quad \text{(frequency distribution)}$$

INDEX NUMBERS

Price relative = 100 * P_1/P_0 Quantity relative = 100 * Q_1/Q_0

Price: $$\frac{\sum w * \left(\frac{p_1}{p_o} \right)}{\sum w} \times 100$$

Quantity: $$\frac{\sum w * \left(\frac{Q_1}{Q_o} \right)}{\sum w} \times 100$$

TIME SERIES

Additive Model

Series = Trend + Seasonal + Random

Multiplicative Model

Series = Trend * Seasonal * Random

LINEAR REGRESSION AND CORRELATION

The linear regression equation of *y* on *x* is given by:

$$Y = a + bX \quad or \quad Y - Y = b(\overline{X} - \overline{X})$$

where

$$b = \frac{\text{Covariance}(XY)}{\text{Variance}(X)} = \frac{n\sum XY - (\sum x)(\sum y)}{n\sum x^2 - (\sum x)^2}$$

and

$$a = \overline{Y} - b\overline{X}$$

or solve

$$\sum Y = na + b\sum x$$
$$\sum XY = a\sum x + b\sum x^2$$

Coefficient of correlation

$$r = \frac{\text{Covariance}(XY)}{\sqrt{Var(X).Var(Y)}} = \frac{n\sum XY - (\sum X)(\sum Y)}{\sqrt{\{n\sum x^2 - (\sum x)^2\}\{n\sum y^2 - (\sum y)^2\}}}$$

$$R(\text{rank}) = 1 - \frac{6\sum d^2}{n(n^2 - 1)}$$

FINANCIAL MATHEMATICS

Compound Interest (Values and Sums)

Future Value of *S*, of a sum of *X*, invested for *n* periods, compounded at *r*% interest

$$S = X[1 + r]^n$$

Annuity

Present value of an annuity of £1 per annum receivable or payable for *n* years, commencing in one year, discounted at *r*% per annum:

$$PV = \frac{1}{r}\left[1 - \frac{1}{[1+r]^n}\right]$$

Perpetuity

Present value of £1 per annum, payable or receivable in perpetuity, commencing in one year, discounted at *r*% per annum:

$$PV = \frac{1}{r}$$

F3 FORMULAE

DVM

$$P_0 = \frac{d_1}{k_e - g}$$

$$k_e = \frac{d_1}{P_0} + g$$

$$g = r \times b$$

CAPM

$$k = R_f + [R_m - R_f]ß$$

$$ß_{eu} = ß_{eg}\left[\frac{V_E}{V_E + V_D[1-t]}\right] + ß_d\left[\frac{V_D[1-t]}{V_E + V_D[1-t]}\right]$$

$$ß_{eg} = ß_{eu} + [ß_{eu} - ß_d]\left[\frac{V_D[1-t]}{V_E}\right]$$

WACC

$$WACC = k_{eg}\left[\frac{V_E}{V_E + V_D}\right] + k_d[1-t]\left[\frac{V_D}{V_E + V_D}\right]$$

FX, interest rates & inflation

$$F_0 = S_0 \times \frac{[1 + r_{var}]}{[1 + r_{base}]}$$

$$S_1 = S_0 \times \frac{[1 + r_{var}]}{[1 + r_{base}]}$$

$$(1 + r_{nominal}) = (1 + r_{real}) \times (1 + \text{inflation})$$

M&M

$$V_g = V_u + TB$$

$$k_{eg} = k_{eu} + [k_{eu} - k_d]\left[\frac{V_D[1-t]}{V_E}\right]$$

$$WACC = k_{eu}\left[1 - \left[\frac{V_D t}{V_E + V_D}\right]\right]$$

TERP

$$\text{TERP} = \frac{1}{N+1}[(N \times \text{cum rights price}) + \text{issue price}]$$

$$\text{Yield-adjusted TERP} = \frac{1}{N+1}[(N \times \text{cum rights price}) + \text{issue price} \times (Y_{new}/Y_{old})]$$

VaR

VaR = confidence interval value x standard deviation

The confidence interval value comes from the normal distribution table.

Present Value Table

Present value of $1 that is $(1+r)^{-n}$ where r = interest rate; n = number of periods until payment or receipt.

Periods (n)	*Interest rates (r)*									
	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%
1	0.990	0.980	0.971	0.962	0.952	0.943	0.935	0.926	0.917	0.909
2	0.980	0.961	0.943	0.925	0.907	0.890	0.873	0.857	0.842	0.826
3	0.971	0.942	0.915	0.889	0.864	0.840	0.816	0.794	0.772	0.751
4	0.961	0.924	0.888	0.855	0.823	0.792	0.763	0.735	0.708	0.683
5	0.951	0.906	0.863	0.822	0.784	0.747	0.713	0.681	0.650	0.621
6	0.942	0.888	0.837	0.790	0.746	0.705	0.666	0.630	0.596	0.564
7	0.933	0.871	0.813	0.760	0.711	0.665	0.623	0.583	0.547	0.513
8	0.923	0.853	0.789	0.731	0.677	0.627	0.582	0.540	0.502	0.467
9	0.914	0.837	0.766	0.703	0.645	0.592	0.544	0.500	0.460	0.424
10	0.905	0.820	0.744	0.676	0.614	0.558	0.508	0.463	0.422	0.386
11	0.896	0.804	0.722	0.650	0.585	0.527	0.475	0.429	0.388	0.350
12	0.887	0.788	0.701	0.625	0.557	0.497	0.444	0.397	0.356	0.319
13	0.879	0.773	0.681	0.601	0.530	0.469	0.415	0.368	0.326	0.290
14	0.870	0.758	0.661	0.577	0.505	0.442	0.388	0.340	0.299	0.263
15	0.861	0.743	0.642	0.555	0.481	0.417	0.362	0.315	0.275	0.239
16	0.853	0.728	0.623	0.534	0.458	0.394	0.339	0.292	0.252	0.218
17	0.844	0.714	0.605	0.513	0.436	0.371	0.317	0.270	0.231	0.198
18	0.836	0.700	0.587	0.494	0.416	0.350	0.296	0.250	0.212	0.180
19	0.828	0.686	0.570	0.475	0.396	0.331	0.277	0.232	0.194	0.164
20	0.820	0.673	0.554	0.456	0.377	0.312	0.258	0.215	0.178	0.149

Periods (n)	*Interest rates (r)*									
	11%	12%	13%	14%	15%	16%	17%	18%	19%	20%
1	0.901	0.893	0.885	0.877	0.870	0.862	0.855	0.847	0.840	0.833
2	0.812	0.797	0.783	0.769	0.756	0.743	0.731	0.718	0.706	0.694
3	0.731	0.712	0.693	0.675	0.658	0.641	0.624	0.609	0.593	0.579
4	0.659	0.636	0.613	0.592	0.572	0.552	0.534	0.516	0.499	0.482
5	0.593	0.567	0.543	0.519	0.497	0.476	0.456	0.437	0.419	0.402
6	0.535	0.507	0.480	0.456	0.432	0.410	0.390	0.370	0.352	0.335
7	0.482	0.452	0.425	0.400	0.376	0.354	0.333	0.314	0.296	0.279
8	0.434	0.404	0.376	0.351	0.327	0.305	0.285	0.266	0.249	0.233
9	0.391	0.361	0.333	0.308	0.284	0.263	0.243	0.225	0.209	0.194
10	0.352	0.322	0.295	0.270	0.247	0.227	0.208	0.191	0.176	0.162
11	0.317	0.287	0.261	0.237	0.215	0.195	0.178	0.162	0.148	0.135
12	0.286	0.257	0.231	0.208	0.187	0.168	0.152	0.137	0.124	0.112
13	0.258	0.229	0.204	0.182	0.163	0.145	0.130	0.116	0.104	0.093
14	0.232	0.205	0.181	0.160	0.141	0.125	0.111	0.099	0.088	0.078
15	0.209	0.183	0.160	0.140	0.123	0.108	0.095	0.084	0.074	0.065
16	0.188	0.163	0.141	0.123	0.107	0.093	0.081	0.071	0.062	0.054
17	0.170	0.146	0.125	0.108	0.093	0.080	0.069	0.060	0.052	0.045
18	0.153	0.130	0.111	0.095	0.081	0.069	0.059	0.051	0.044	0.038
19	0.138	0.116	0.098	0.083	0.070	0.060	0.051	0.043	0.037	0.031
20	0.124	0.104	0.087	0.073	0.061	0.051	0.043	0.037	0.031	0.026