

**INSTITUTE OF BANKERS IN MALAWI**

**DIPLOMA IN BANKING EXAMINATION**

**SUBJECT: PRINCIPLES OF INVESTMENTS (IOBM-D209)**

**Date: Sunday, 11th November 2018**

**Time Allocated: 3 hours (13:30 – 16:30 Hours)**

**INSTRUCTIONS TO CANDIDATES**

1 This paper consists of **TWO** Sections, A and B.

2 Section A consists of 4 questions, each question carries 15 marks.

Answer **ALL** questions.

3 Section B consists of 4 questions, each question carries 20 marks. Answer **ANY TWO** questions.

4 You will be allowed **10 minutes** to go through the paper before the start of the examination, you may write on this paper but not in the answer book.

5 Begin each answer on a new page.

6 **Please write your examination number on each answer book used. Answer books without examination numbers will not be marked.**

7 All persons writing examinations without payment will risk expulsion from the Institute.

8 If you are caught cheating, you will be automatically disqualified in all subjects seated this semester.

9 DO NOT open this question paper until instructed to do so.

**SECTION A (60 MARKS)**

Answer **ALL** questions from this section

**QUESTION 1**

1. Assume you are an investment advisor for Brecon Insurance Company. Mr Nyalugwe has approached you for advice on an insurance policy. He wants to buy an ordinary annuity policy depositing a fixed amount of K700 at the end of each month for one year. The interest rate of the annuity is set at 9% per annum.

**Required:**

Calculate the future value of the policy for the one year period using the ordinary annuity formula rounding you answer to four decimal places where possible.

*(9 marks)*

b) One of the fundamental concepts of investment is that the value of money depends on when the cash flow occurs. Simply put, K1 now is more that K1 tomorrow.

**Required:**

List and explain **three** reasons supporting the theorisation of K1 now is more than K1 tomorrow. *(6 marks)*

**(Total 15 marks)**

**QUESTION 2**

Snickers Ltd has its stock listed on the Malawi Stock Exchange and is faced with both systematic and non-systematic risk. The company’s stocks have a beta of 1.5 and expected market return of 24%. The return on 10-year government bond yield is currently estimated at 15%.

**Required:**

1. Explain **two** differences between systematic and unsystematic risk.

*(4 marks)*

1. Using the Capital Asset Pricing Model (CAPM) formula, calculate the expected return of Snickers Ltd stocks.

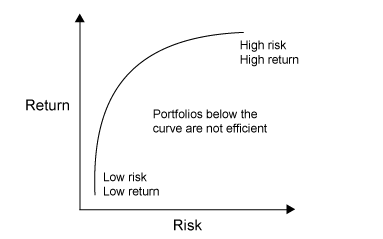
*(7 marks)*

1. The general idea behind CAPM is that investors need to be compensated in two ways: time value of money and risk. Discuss how this is incorporated into the CAPM formula. *(4 marks)*

**(Total 15 marks)**

**QUESTION 3**

Quaker Oats is considering a number of investment portfolios. The figure below depicts expected returns for all investments under consideration plotted against their associated risks.



**Required:**

1. Identify and explain key considerations investors should look for when considering about an investment.

*(5 marks)*

1. Discuss the relevance of the efficient frontier line in making and selecting investment decisions.  *(10 marks)*

**(Total 15 marks)**

**QUESTION 4**

Money markets and capital markets (i.e. bond and equity markets) are commended as rich gold mines for investment funds.

**Required:**

1. i) Define the term money market.

*(1 mark)*

ii) Discuss the difference between interest bearing instruments and discounted instruments and provide **one** example for each.

*(4 marks)*

1. Briefly discuss **one** differentiating features of bond market and stock markets.

*(2 marks)*

1. List and explain **four** distinct types of bonds. *(8 marks)*

**(Total 15 marks)**

**SECTION B (40 MARKS)**

Answer **ANY TWO** questions from this section

**QUESTION 5**

Assume you are working for Microfinance Company in a department responsible for customer vetting. Sirkka & Co has applied for a loan to finance its new project. Sirkka & Co has been in operation since 1 January 2017. Your manager, Mrs Bess, has provided you with the Sirkka & Co summary financial statements for the year ended 31 December 2017. She is looking for your advice on whether or not to grant Sirkka & company the loan on the basis of the available information.

**Sirkka & Co**

**Summary financial statements**

|  |  |
| --- | --- |
|  | K |
|  | **2017** |
| Revenue | 3,676,000 |
| Cost of Sales | 2,736,000 |
| Operating Profit (EBIT) | 763,000 |
| Interest Paid | 14,000 |
| Taxes | 144,000 |
| Net Income | 589,000 |
| EPS (cents) | 0.04 |
| retained earnings | 1,861,000 |
| Dividends | 356,000 |
| Inventories | 3,984,000 |
| Current Assets | 4,526,000 |
| Non-current Assets | 219,000 |
| Total Assets | 4,745,000 |
| Current Liabilities | 1,078,000 |
| Non-current Liabilities | 768,000 |
| Total Liabilities | 1,846,000 |
| Net Debt | 86,000 |
| Shareholders Fund (Equity) | 2,900,000 |

**Required:**

1. Use the summary financial statements for Sirkka & Co as at 31 December 2017 and calculate the following ratios:
2. Debt-to-equity ratio *(3 marks)*
3. Interest coverage ratio *(3 marks)*
4. Current ratio *(3 marks)*
5. Quick/acid test ratio *(3 marks)*
6. Gross profit ratio *(3 marks)*
7. Based on your results from a) above, provide advise your manager whether or not it is safe to grant Sirkka & Co the loan. *(5 marks)*

**(Total 20 marks)**

**QUESTION 6**

Management of funds is one crucial aspect of the life of the investment manager. It requires a disciplined and a systematic step-by-step process to ensure that funds are well managed.

**Required:**

List and discuss **five** important steps you would consider to ensure that funds entrusted in your capacity as a fund manager are properly managed.

**(Total 20 marks)**

**QUESTION 7**

Garth and Marina are fresh graduates and are planning for their wedding. They are considering getting a bank loan amounting to K7, 500,000 repayable in 3 years to finance their wedding, and purchase some furniture and breakables to start with their matrimonial home. They went to Z Bank to discuss the loan arrangement and they were provided with three different loan facilities with a maturity period of 3 years as shown in the table below. The bank manager also indicated that the interest rate might drop if the loan is secured. However, Garth and Marina are not sure about the loan facility to apply for and they are seeking for your financial advice.

|  |  |  |
| --- | --- | --- |
| **Loan facilities** | **Interest type** | **Z Bank** |
| A | Annual simple | 24.8% |
| B | Annual compounded | 17.1% |
| C | Quarterly compounded | 12.5% |

**Required:**

1. Compute future values for EACH loan facility and advice Garth and Marina on the loan facility to apply.

*(16 marks)*

1. Explain **two** differences between secured loan and unsecured loan.

*(4 marks)*

**(Total 20 marks)**

**QUESTION 8**

The concepts of “fundamental analysis” assert that investments decisions are influenced by macroeconomic, industry, and company specific forces.

**Required**

Write a brief essay discussing the macroeconomic, industry, and company specific forces that influence investment decision. **(Total 20 marks)**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Present value interest factor of K1 per period at i% for n periods, PVIF(i,n). | | | | | | | | | | | | | | | | | | | | |
| Period | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% |
| 1 | 0.990 | 0.980 | 0.971 | 0.962 | 0.952 | 0.943 | 0.935 | 0.926 | 0.917 | 0.909 | 0.901 | 0.893 | 0.885 | 0.877 | 0.870 | 0.862 | 0.855 | 0.847 | 0.840 | 0.833 |
| 2 | 0.980 | 0.961 | 0.943 | 0.925 | 0.907 | 0.890 | 0.873 | 0.857 | 0.842 | 0.826 | 0.812 | 0.797 | 0.783 | 0.769 | 0.756 | 0.743 | 0.731 | 0.718 | 0.706 | 0.694 |
| 3 | 0.971 | 0.942 | 0.915 | 0.889 | 0.864 | 0.840 | 0.816 | 0.794 | 0.772 | 0.751 | 0.731 | 0.712 | 0.693 | 0.675 | 0.658 | 0.641 | 0.624 | 0.609 | 0.593 | 0.579 |
| 4 | 0.961 | 0.924 | 0.888 | 0.855 | 0.823 | 0.792 | 0.763 | 0.735 | 0.708 | 0.683 | 0.659 | 0.636 | 0.613 | 0.592 | 0.572 | 0.552 | 0.534 | 0.516 | 0.499 | 0.482 |
| 5 | 0.951 | 0.906 | 0.863 | 0.822 | 0.784 | 0.747 | 0.713 | 0.681 | 0.650 | 0.621 | 0.593 | 0.567 | 0.543 | 0.519 | 0.497 | 0.476 | 0.456 | 0.437 | 0.419 | 0.402 |
| 6 | 0.942 | 0.888 | 0.837 | 0.790 | 0.746 | 0.705 | 0.666 | 0.630 | 0.596 | 0.564 | 0.535 | 0.507 | 0.480 | 0.456 | 0.432 | 0.410 | 0.390 | 0.370 | 0.352 | 0.335 |
| 7 | 0.933 | 0.871 | 0.813 | 0.760 | 0.711 | 0.665 | 0.623 | 0.583 | 0.547 | 0.513 | 0.482 | 0.452 | 0.425 | 0.400 | 0.376 | 0.354 | 0.333 | 0.314 | 0.296 | 0.279 |
| 8 | 0.923 | 0.853 | 0.789 | 0.731 | 0.677 | 0.627 | 0.582 | 0.540 | 0.502 | 0.467 | 0.434 | 0.404 | 0.376 | 0.351 | 0.327 | 0.305 | 0.285 | 0.266 | 0.249 | 0.233 |
| 9 | 0.914 | 0.837 | 0.766 | 0.703 | 0.645 | 0.592 | 0.544 | 0.500 | 0.460 | 0.424 | 0.391 | 0.361 | 0.333 | 0.308 | 0.284 | 0.263 | 0.243 | 0.225 | 0.209 | 0.194 |
| 10 | 0.905 | 0.820 | 0.744 | 0.676 | 0.614 | 0.558 | 0.508 | 0.463 | 0.422 | 0.386 | 0.352 | 0.322 | 0.295 | 0.270 | 0.247 | 0.227 | 0.208 | 0.191 | 0.176 | 0.162 |
| 11 | 0.896 | 0.804 | 0.722 | 0.650 | 0.585 | 0.527 | 0.475 | 0.429 | 0.388 | 0.350 | 0.317 | 0.287 | 0.261 | 0.237 | 0.215 | 0.195 | 0.178 | 0.162 | 0.148 | 0.135 |
| 12 | 0.887 | 0.788 | 0.701 | 0.625 | 0.557 | 0.497 | 0.444 | 0.397 | 0.356 | 0.319 | 0.286 | 0.257 | 0.231 | 0.208 | 0.187 | 0.168 | 0.152 | 0.137 | 0.124 | 0.112 |
| 13 | 0.879 | 0.773 | 0.681 | 0.601 | 0.530 | 0.469 | 0.415 | 0.368 | 0.326 | 0.290 | 0.258 | 0.229 | 0.204 | 0.182 | 0.163 | 0.145 | 0.130 | 0.116 | 0.104 | 0.093 |
| 14 | 0.870 | 0.758 | 0.661 | 0.577 | 0.505 | 0.442 | 0.388 | 0.340 | 0.299 | 0.263 | 0.232 | 0.205 | 0.181 | 0.160 | 0.141 | 0.125 | 0.111 | 0.099 | 0.088 | 0.078 |
| 15 | 0.861 | 0.743 | 0.642 | 0.555 | 0.481 | 0.417 | 0.362 | 0.315 | 0.275 | 0.239 | 0.209 | 0.183 | 0.160 | 0.140 | 0.123 | 0.108 | 0.095 | 0.084 | 0.074 | 0.065 |
| 16 | 0.853 | 0.728 | 0.623 | 0.534 | 0.458 | 0.394 | 0.339 | 0.292 | 0.252 | 0.218 | 0.188 | 0.163 | 0.141 | 0.123 | 0.107 | 0.093 | 0.081 | 0.071 | 0.062 | 0.054 |
| 17 | 0.844 | 0.714 | 0.605 | 0.513 | 0.436 | 0.371 | 0.317 | 0.270 | 0.231 | 0.198 | 0.170 | 0.146 | 0.125 | 0.108 | 0.093 | 0.080 | 0.069 | 0.060 | 0.052 | 0.045 |
| 18 | 0.836 | 0.700 | 0.587 | 0.494 | 0.416 | 0.350 | 0.296 | 0.250 | 0.212 | 0.180 | 0.153 | 0.130 | 0.111 | 0.095 | 0.081 | 0.069 | 0.059 | 0.051 | 0.044 | 0.038 |
| 19 | 0.828 | 0.686 | 0.570 | 0.475 | 0.396 | 0.331 | 0.277 | 0.232 | 0.194 | 0.164 | 0.138 | 0.116 | 0.098 | 0.083 | 0.070 | 0.060 | 0.051 | 0.043 | 0.037 | 0.031 |
| 20 | 0.820 | 0.673 | 0.554 | 0.456 | 0.377 | 0.312 | 0.258 | 0.215 | 0.178 | 0.149 | 0.124 | 0.104 | 0.087 | 0.073 | 0.061 | 0.051 | 0.043 | 0.037 | 0.031 | 0.026 |
| 25 | 0.780 | 0.610 | 0.478 | 0.375 | 0.295 | 0.233 | 0.184 | 0.146 | 0.116 | 0.092 | 0.074 | 0.059 | 0.047 | 0.038 | 0.030 | 0.024 | 0.020 | 0.016 | 0.013 | 0.010 |
| 30 | 0.742 | 0.552 | 0.412 | 0.308 | 0.231 | 0.174 | 0.131 | 0.099 | 0.075 | 0.057 | 0.044 | 0.033 | 0.026 | 0.020 | 0.015 | 0.012 | 0.009 | 0.007 | 0.005 | 0.004 |
| 35 | 0.706 | 0.500 | 0.355 | 0.253 | 0.181 | 0.130 | 0.094 | 0.068 | 0.049 | 0.036 | 0.026 | 0.019 | 0.014 | 0.010 | 0.008 | 0.006 | 0.004 | 0.003 | 0.002 | 0.002 |
| 40 | 0.672 | 0.453 | 0.307 | 0.208 | 0.142 | 0.097 | 0.067 | 0.046 | 0.032 | 0.022 | 0.015 | 0.011 | 0.008 | 0.005 | 0.004 | 0.003 | 0.002 | 0.001 | 0.001 | 0.001 |
| 50 | 0.608 | 0.372 | 0.228 | 0.141 | 0.087 | 0.054 | 0.034 | 0.021 | 0.013 | 0.009 | 0.005 | 0.003 | 0.002 | 0.001 | 0.001 | 0.001 | 0.000 | 0.000 | 0.000 | 0.000 |

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| Future value interest factor of an ordinary annuity of K1 per period at i% for n periods, FVIFA(i,n). | | | | | | | | | | | | | | | | | | | | |
| Period | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% |
| 1 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |
| 2 | 2.010 | 2.020 | 2.030 | 2.040 | 2.050 | 2.060 | 2.070 | 2.080 | 2.090 | 2.100 | 2.110 | 2.120 | 2.130 | 2.140 | 2.150 | 2.160 | 2.170 | 2.180 | 2.190 | 2.200 |
| 3 | 3.030 | 3.060 | 3.091 | 3.122 | 3.153 | 3.184 | 3.215 | 3.246 | 3.278 | 3.310 | 3.342 | 3.374 | 3.407 | 3.440 | 3.473 | 3.506 | 3.539 | 3.572 | 3.606 | 3.640 |
| 4 | 4.060 | 4.122 | 4.184 | 4.246 | 4.310 | 4.375 | 4.440 | 4.506 | 4.573 | 4.641 | 4.710 | 4.779 | 4.850 | 4.921 | 4.993 | 5.066 | 5.141 | 5.215 | 5.291 | 5.368 |
| 5 | 5.101 | 5.204 | 5.309 | 5.416 | 5.526 | 5.637 | 5.751 | 5.867 | 5.985 | 6.105 | 6.228 | 6.353 | 6.480 | 6.610 | 6.742 | 6.877 | 7.014 | 7.154 | 7.297 | 7.442 |
| 6 | 6.152 | 6.308 | 6.468 | 6.633 | 6.802 | 6.975 | 7.153 | 7.336 | 7.523 | 7.716 | 7.913 | 8.115 | 8.323 | 8.536 | 8.754 | 8.977 | 9.207 | 9.442 | 9.683 | 9.930 |
| 7 | 7.214 | 7.434 | 7.662 | 7.898 | 8.142 | 8.394 | 8.654 | 8.923 | 9.200 | 9.487 | 9.783 | 10.089 | 10.405 | 10.730 | 11.067 | 11.414 | 11.772 | 12.142 | 12.523 | 12.916 |
| 8 | 8.286 | 8.583 | 8.892 | 9.214 | 9.549 | 9.897 | 10.260 | 10.637 | 11.028 | 11.436 | 11.859 | 12.300 | 12.757 | 13.233 | 13.727 | 14.240 | 14.773 | 15.327 | 15.902 | 16.499 |
| 9 | 9.369 | 9.755 | 10.159 | 10.583 | 11.027 | 11.491 | 11.978 | 12.488 | 13.021 | 13.579 | 14.164 | 14.776 | 15.416 | 16.085 | 16.786 | 17.519 | 18.285 | 19.086 | 19.923 | 20.799 |
| 10 | 10.462 | 10.950 | 11.464 | 12.006 | 12.578 | 13.181 | 13.816 | 14.487 | 15.193 | 15.937 | 16.722 | 17.549 | 18.420 | 19.337 | 20.304 | 21.321 | 22.393 | 23.521 | 24.709 | 25.959 |
| 11 | 11.567 | 12.169 | 12.808 | 13.486 | 14.207 | 14.972 | 15.784 | 16.645 | 17.560 | 18.531 | 19.561 | 20.655 | 21.814 | 23.045 | 24.349 | 25.733 | 27.200 | 28.755 | 30.404 | 32.150 |
| 12 | 12.683 | 13.412 | 14.192 | 15.026 | 15.917 | 16.870 | 17.888 | 18.977 | 20.141 | 21.384 | 22.713 | 24.133 | 25.650 | 27.271 | 29.002 | 30.850 | 32.824 | 34.931 | 37.180 | 39.581 |
| 13 | 13.809 | 14.680 | 15.618 | 16.627 | 17.713 | 18.882 | 20.141 | 21.495 | 22.953 | 24.523 | 26.212 | 28.029 | 29.985 | 32.089 | 34.352 | 36.786 | 39.404 | 42.219 | 45.244 | 48.497 |
| 14 | 14.947 | 15.974 | 17.086 | 18.292 | 19.599 | 21.015 | 22.550 | 24.215 | 26.019 | 27.975 | 30.095 | 32.393 | 34.883 | 37.581 | 40.505 | 43.672 | 47.103 | 50.818 | 54.841 | 59.196 |
| 15 | 16.097 | 17.293 | 18.599 | 20.024 | 21.579 | 23.276 | 25.129 | 27.152 | 29.361 | 31.772 | 34.405 | 37.280 | 40.417 | 43.842 | 47.580 | 51.660 | 56.110 | 60.965 | 66.261 | 72.035 |
| 16 | 17.258 | 18.639 | 20.157 | 21.825 | 23.657 | 25.673 | 27.888 | 30.324 | 33.003 | 35.950 | 39.190 | 42.753 | 46.672 | 50.980 | 55.717 | 60.925 | 66.649 | 72.939 | 79.850 | 87.442 |
| 17 | 18.430 | 20.012 | 21.762 | 23.698 | 25.840 | 28.213 | 30.840 | 33.750 | 36.974 | 40.545 | 44.501 | 48.884 | 53.739 | 59.118 | 65.075 | 71.673 | 78.979 | 87.068 | 96.022 | 105.93 |
| 18 | 19.615 | 21.412 | 23.414 | 25.645 | 28.132 | 30.906 | 33.999 | 37.450 | 41.301 | 45.599 | 50.396 | 55.750 | 61.725 | 68.394 | 75.836 | 84.141 | 93.406 | 103.74 | 115.27 | 128.12 |
| 19 | 20.811 | 22.841 | 25.117 | 27.671 | 30.539 | 33.760 | 37.379 | 41.446 | 46.018 | 51.159 | 56.939 | 63.440 | 70.749 | 78.969 | 88.212 | 98.603 | 110.28 | 123.41 | 138.17 | 154.74 |
| 20 | 22.019 | 24.297 | 26.870 | 29.778 | 33.066 | 36.786 | 40.995 | 45.762 | 51.160 | 57.275 | 64.203 | 72.052 | 80.947 | 91.025 | 102.44 | 115.38 | 130.03 | 146.63 | 165.42 | 186.69 |
| 25 | 28.243 | 32.030 | 36.459 | 41.646 | 47.727 | 54.865 | 63.249 | 73.106 | 84.701 | 98.347 | 114.41 | 133.33 | 155.62 | 181.87 | 212.79 | 249.21 | 292.10 | 342.60 | 402.04 | 471.98 |
| 30 | 34.785 | 40.568 | 47.575 | 56.085 | 66.439 | 79.058 | 94.461 | 113.28 | 136.31 | 164.49 | 199.02 | 241.33 | 293.20 | 356.79 | 434.75 | 530.31 | 647.44 | 790.95 | 966.71 | 1,181.9 |
| 35 | 41.660 | 49.994 | 60.462 | 73.652 | 90.320 | 111.43 | 138.24 | 172.32 | 215.71 | 271.02 | 341.59 | 431.66 | 546.68 | 693.57 | 881.17 | 1,120.7 | 1,426.5 | 1,816.7 | 2,314.2 | 2,948.3 |
| 40 | 48.886 | 60.402 | 75.401 | 95.026 | 120.80 | 154.76 | 199.64 | 259.06 | 337.88 | 442.59 | 581.83 | 767.09 | 1,013.7 | 1,342.0 | 1,779.1 | 2,360.8 | 3,134.5 | 4,163.2 | 5,529.8 | 7,343.9 |
| 50 | 64.463 | 84.579 | 112.80 | 152.67 | 209.35 | 290.34 | 406.53 | 573.77 | 815.08 | 1,163.9 | 1,668.8 | 2,400.0 | 3,459.5 | 4,994.5 | 7,217.7 | 10,436 | 15,090 | 21,813 | 31,515 | 45,497 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Present value interest factor of an (ordinary) annuity of K1 per period at i% for n periods, PVIFA(i,n). | | | | | | | | | | | | | | | | | | | | |
| Period | 1% | 2% | 3% | 4% | 5% | 6% | 7% | 8% | 9% | 10% | 11% | 12% | 13% | 14% | 15% | 16% | 17% | 18% | 19% | 20% |
| 1 | 0.990 | 0.980 | 0.971 | 0.962 | 0.952 | 0.943 | 0.935 | 0.926 | 0.917 | 0.909 | 0.901 | 0.893 | 0.885 | 0.877 | 0.870 | 0.862 | 0.855 | 0.847 | 0.840 | 0.833 |
| 2 | 1.970 | 1.942 | 1.913 | 1.886 | 1.859 | 1.833 | 1.808 | 1.783 | 1.759 | 1.736 | 1.713 | 1.690 | 1.668 | 1.647 | 1.626 | 1.605 | 1.585 | 1.566 | 1.547 | 1.528 |
| 3 | 2.941 | 2.884 | 2.829 | 2.775 | 2.723 | 2.673 | 2.624 | 2.577 | 2.531 | 2.487 | 2.444 | 2.402 | 2.361 | 2.322 | 2.283 | 2.246 | 2.210 | 2.174 | 2.140 | 2.106 |
| 4 | 3.902 | 3.808 | 3.717 | 3.630 | 3.546 | 3.465 | 3.387 | 3.312 | 3.240 | 3.170 | 3.102 | 3.037 | 2.974 | 2.914 | 2.855 | 2.798 | 2.743 | 2.690 | 2.639 | 2.589 |
| 5 | 4.853 | 4.713 | 4.580 | 4.452 | 4.329 | 4.212 | 4.100 | 3.993 | 3.890 | 3.791 | 3.696 | 3.605 | 3.517 | 3.433 | 3.352 | 3.274 | 3.199 | 3.127 | 3.058 | 2.991 |
| 6 | 5.795 | 5.601 | 5.417 | 5.242 | 5.076 | 4.917 | 4.767 | 4.623 | 4.486 | 4.355 | 4.231 | 4.111 | 3.998 | 3.889 | 3.784 | 3.685 | 3.589 | 3.498 | 3.410 | 3.326 |
| 7 | 6.728 | 6.472 | 6.230 | 6.002 | 5.786 | 5.582 | 5.389 | 5.206 | 5.033 | 4.868 | 4.712 | 4.564 | 4.423 | 4.288 | 4.160 | 4.039 | 3.922 | 3.812 | 3.706 | 3.605 |
| 8 | 7.652 | 7.325 | 7.020 | 6.733 | 6.463 | 6.210 | 5.971 | 5.747 | 5.535 | 5.335 | 5.146 | 4.968 | 4.799 | 4.639 | 4.487 | 4.344 | 4.207 | 4.078 | 3.954 | 3.837 |
| 9 | 8.566 | 8.162 | 7.786 | 7.435 | 7.108 | 6.802 | 6.515 | 6.247 | 5.995 | 5.759 | 5.537 | 5.328 | 5.132 | 4.946 | 4.772 | 4.607 | 4.451 | 4.303 | 4.163 | 4.031 |
| 10 | 9.471 | 8.983 | 8.530 | 8.111 | 7.722 | 7.360 | 7.024 | 6.710 | 6.418 | 6.145 | 5.889 | 5.650 | 5.426 | 5.216 | 5.019 | 4.833 | 4.659 | 4.494 | 4.339 | 4.192 |
| 11 | 10.368 | 9.787 | 9.253 | 8.760 | 8.306 | 7.887 | 7.499 | 7.139 | 6.805 | 6.495 | 6.207 | 5.938 | 5.687 | 5.453 | 5.234 | 5.029 | 4.836 | 4.656 | 4.486 | 4.327 |
| 12 | 11.255 | 10.575 | 9.954 | 9.385 | 8.863 | 8.384 | 7.943 | 7.536 | 7.161 | 6.814 | 6.492 | 6.194 | 5.918 | 5.660 | 5.421 | 5.197 | 4.988 | 4.793 | 4.611 | 4.439 |
| 13 | 12.134 | 11.348 | 10.635 | 9.986 | 9.394 | 8.853 | 8.358 | 7.904 | 7.487 | 7.103 | 6.750 | 6.424 | 6.122 | 5.842 | 5.583 | 5.342 | 5.118 | 4.910 | 4.715 | 4.533 |
| 14 | 13.004 | 12.106 | 11.296 | 10.563 | 9.899 | 9.295 | 8.745 | 8.244 | 7.786 | 7.367 | 6.982 | 6.628 | 6.302 | 6.002 | 5.724 | 5.468 | 5.229 | 5.008 | 4.802 | 4.611 |
| 15 | 13.865 | 12.849 | 11.938 | 11.118 | 10.380 | 9.712 | 9.108 | 8.559 | 8.061 | 7.606 | 7.191 | 6.811 | 6.462 | 6.142 | 5.847 | 5.575 | 5.324 | 5.092 | 4.876 | 4.675 |
| 16 | 14.718 | 13.578 | 12.561 | 11.652 | 10.838 | 10.106 | 9.447 | 8.851 | 8.313 | 7.824 | 7.379 | 6.974 | 6.604 | 6.265 | 5.954 | 5.668 | 5.405 | 5.162 | 4.938 | 4.730 |
| 17 | 15.562 | 14.292 | 13.166 | 12.166 | 11.274 | 10.477 | 9.763 | 9.122 | 8.544 | 8.022 | 7.549 | 7.120 | 6.729 | 6.373 | 6.047 | 5.749 | 5.475 | 5.222 | 4.990 | 4.775 |
| 18 | 16.398 | 14.992 | 13.754 | 12.659 | 11.690 | 10.828 | 10.059 | 9.372 | 8.756 | 8.201 | 7.702 | 7.250 | 6.840 | 6.467 | 6.128 | 5.818 | 5.534 | 5.273 | 5.033 | 4.812 |
| 19 | 17.226 | 15.678 | 14.324 | 13.134 | 12.085 | 11.158 | 10.336 | 9.604 | 8.950 | 8.365 | 7.839 | 7.366 | 6.938 | 6.550 | 6.198 | 5.877 | 5.584 | 5.316 | 5.070 | 4.843 |
| 20 | 18.046 | 16.351 | 14.877 | 13.590 | 12.462 | 11.470 | 10.594 | 9.818 | 9.129 | 8.514 | 7.963 | 7.469 | 7.025 | 6.623 | 6.259 | 5.929 | 5.628 | 5.353 | 5.101 | 4.870 |
| 25 | 22.023 | 19.523 | 17.413 | 15.622 | 14.094 | 12.783 | 11.654 | 10.675 | 9.823 | 9.077 | 8.422 | 7.843 | 7.330 | 6.873 | 6.464 | 6.097 | 5.766 | 5.467 | 5.195 | 4.948 |
| 30 | 25.808 | 22.396 | 19.600 | 17.292 | 15.372 | 13.765 | 12.409 | 11.258 | 10.274 | 9.427 | 8.694 | 8.055 | 7.496 | 7.003 | 6.566 | 6.177 | 5.829 | 5.517 | 5.235 | 4.979 |
| 35 | 29.409 | 24.999 | 21.487 | 18.665 | 16.374 | 14.498 | 12.948 | 11.655 | 10.567 | 9.644 | 8.855 | 8.176 | 7.586 | 7.070 | 6.617 | 6.215 | 5.858 | 5.539 | 5.251 | 4.992 |
| 40 | 32.835 | 27.355 | 23.115 | 19.793 | 17.159 | 15.046 | 13.332 | 11.925 | 10.757 | 9.779 | 8.951 | 8.244 | 7.634 | 7.105 | 6.642 | 6.233 | 5.871 | 5.548 | 5.258 | 4.997 |
| 50 | 39.196 | 31.424 | 25.730 | 21.482 | 18.256 | 15.762 | 13.801 | 12.233 | 10.962 | 9.915 | 9.042 | 8.304 | 7.675 | 7.133 | 6.661 | 6.246 | 5.880 | 5.554 | 5.262 | 4.999 |