

DAMIBIA UNIVERSITY OF SCIENCE AND TECHNOLOGY

FACULTY OF COMMERCE, HUMAN SCIENCES AND EDUCATION

DEPARTMENT OF ECONOMICS, ACCOUNTING AND FINANCE

QUALIFICATION CODE: 07BHOM & 07BOTM	LEVEL: 6
COURSE CODE: CAH610S	COURSE NAME: COST & MANAGEMENT ACCOUNTING FOR HOSPITALITY & TOURISM
DATE: JANUARY 2024	PAPER: THEORY AND CLACULATIONS
DURATION: 3 HOURS	MARKS: 100

	SECOND OPPORTUNITY EXAMINATION PAPER	
EXAMINER	Sheehama, K.G.H.	
MODERATOR	Odada, L.	
	INSTRUCTIONS	
1. This que	estion paper is made up of four (4) questions.	

- 2. Answer ALL the questions in blue or black ink only. NO pencil
- 3. Start each question on a new page in your answer booklet and show all workings.
- 4. Work with four (4) decimal places in all your calculations and only round off only final answers to two (2) decimal places unless otherwise stated.
- Questions relating to this examination may be raised in the initial 30 minutes after the start of the paper. Thereafter, candidates must use their initiative to deal with any perceived error or ambiguities & any assumption made by the candidate should be clearly stated.

NON – PROGRAMMABLE CALCUTOR

- 1. Examination paper
- 2. Examination script

THIS QUESTION PAPER CONSISTS OF 8 PAGES (INCLUDING THIS FRONT PAGE)

(30 MARKS)

Each of the following questions (1.1 - 1.15) has only ONE correct answer. Please answer this question ON the answer sheet provided. E.g. 1.1-A

1.1 Management accounting is used by:

- a) Shareholders
- b) Internal managers
- c) Employees
- d) External users
- e) None of the above
- 1.2 Management accounting has the following functions:
 - a) Providing information to external parties
 - b) Estimating costs of products and services
 - c) Providing information for internal use
 - d) a and c
 - e) b and c
- 1.3 In the code of ethics followed by management accountants, integrity is:
 - a) Being honest, standing for what is right
 - b) Being just and unbiased
 - c) Being courteous and decent
 - d) Not revealing or disclosing privileged or private information
 - e) Accepting the consequences of actions and decisions
- 1.4 In the code of ethics followed by management accountants, confidentiality is:
 - a) Being honest, standing for what is right
 - b) Being just and unbiased
 - c) Being courteous and decent
 - d) Not revealing or disclosing privileged or private information
 - e) Accepting the consequences of actions and decisions
- 1.5 In the code of ethics followed by management accountants, accountability is:
 - a) Being honest, standing for what is right
 - b) Being just and unbiased
 - c) Being courteous and decent
 - d) Not revealing or disclosing privileged or private information
 - e) Accepting the consequences of actions and decisions

- 1.6 Fixed cost per unit:
 - a) Increases as activity volume decreases
 - b) Remains constant with volume of activity
 - c) Increases as activity volume increases
 - d) Dcreases as activity volume increases
 - e) b and c
- 1.7 A cost that will change in the future due to a decision being made is known as:
 - a) An opportunity cost
 - b) A sunk cost
 - c) A changing cost
 - d) An incremental cost
 - e) A relevant cost

1.8 Conversion costs include:

- a) Direct labour
- b) Direct material
- c) Direct material and manufacturing overheads
- d) Direct labour and direct materials
- e) Direct labour and manufacturing overheads
- 1.9 Costs unaffected by a choice between alternatives and have been included in the past is:
 - a) A sunk cost
 - b) A period cost
 - c) A product cost
 - d) A direct cost
 - e) An indirect cost
- 1.10 Variable cost per unit:
 - a) Increases as activity volume decreases
 - b) Remains constant with volume of activity
 - c) Decreases as activity volume increases
 - d) a and b
 - e) b and c

- 1.11 A company has fixed costs of N\$60 000 per annum. It manufactures a single product which it sells for N\$20 per unit. Its variable cost to sales ratio is 60%. The company's break-even point in N\$ is:
 - a) N\$240 000
 - b) N\$260 000
 - c) N\$160 000
 - d) N\$150 000
 - e) None of the above
- 1.12 Luxury Hotel Ltd supplied the following details regarding its product:

Selling price per unit	N\$600.00
Variable production cost per unit	N\$120.00
Variable selling cost per unit	N\$40.00
Fixed production cost per year	N\$358 000
Fixed selling costs per year	N\$60 000
The contribution margin per unit is:	

- a) N\$160
- b) N\$560
- c) N\$440
- d) N\$480
- e) None of the above

The following details refer to questions 1.13 and 1.14:

Nam-Shoes Ltd currently sells 2 500 pairs of shoes per year. Other details for the past year

are as follows:

Selling price per pair of shoes	N\$200
Purchase cost per pair of shoes	N\$125

Annual fixed costs:

Salaries	N\$65 000
Advertising	N\$20 000
Miscellaneous	N\$35 000

- 1.13 The company's break-even in number of shoes is:
 - a) 1200
 - b) 1400
 - c) 1 600
 - d) 1500
 - e) None of the above

- 1.14 Assume that for the next year an additional fixed advertising campaign costing N\$8 700 is proposed, whilst at the same time selling price is increased by 12%. In this case the new contribution margin per pairs of shoes will be:
 - a) N\$75.00
 - b) N\$99.00
 - c) N\$77.50
 - d) N\$97.50
 - e) None of the above
- 1.15 A firm's water and electricity account would normally be classified into the following category:
 - a) Fixed cost
 - b) Variable cost
 - c) Stepped fixed cost
 - d) Semi-variable/mixed cost
 - e) None of the above

(20 MARKS)

The Patio is a manufacturer of garden furniture that has consistently used First-In-First-Out (FIFO) in valuing inventory. The management of the Patio are now interested in knowing the effect of using Weighted Average Cost (AVCO) in inventory valuation instead of FIFO. The following transactions for the Patio were recorded for the period:

2 August	Opening inventory	100 units	@N\$50 per unit
5 August	Received	120 units	@N\$57.50 per unit
6 August	Issued/sales	200 units	
7 August	Received	180 units	@N\$60 per unit
8 August	Issued/sales	150 units	
9 August	Return to supplier units purchased on 7 August	20 units	

REQUI	RED:	MARKS
	Prepare an inventory ledger card of the Patio for the month of August	14
a)	using four columns showing the date, receiving, issuing, and balancing	
	columns. Each column contains quantity, unit price and the total amount	
L.)	Calculate the gross profit of the Patio. Assume that the selling price is	6
b)	N\$300 per unit.	

(20 MARKS)

Angie Silva has recently opened The Sandal Shop in Rundu, a store that specializes in fashionable sandals. Angie has just received a degree at the NUST and she is anxious to apply the principles she has learned. In time, she hopes to open a chain of sandal shops.

As a first step, she has prepared the following analysis for her new store:

Sales price per pair of sandals	N\$400
Variable expenses per pair of sandals	_160
Contribution margin per pair of sandals	<u>N\$240</u>
A pair of sandals sold	320

Fixed expenses per year:

Building rental	N\$15 000
Equipment depreciation	7 000
Selling expenses	20 000
Administrative expenses	18 000
Total fixed expenses	<u>N\$60 000</u>

EQUI	RED:	MARKS
a)	Calculate how many pairs of sandals must be sold each year to break even in units and N\$.	6
b)	Angie has decided that she must earn at least N\$31 200 as a profit in the first year to justify her time and effort. Calculate how many pairs of sandals must be sold to reach this target profit.	3
c)	Angie now has two salespersons working in the store – one full-time and one part-time. It will cost her an additional fixed expense N\$40 000 per year to convert the part-time position to a full-time position. Angie believes that the change will bring in an additional 300 pairs of sandals annually. Would you recommend her to change the position?	

(30 MARKS)

The management of Penguin CC presently considers investing in a new machine which it believes will increase productivity in its factory. The initial cash outlay will be N\$334 000 and a return of at least 12% per annum is required on all new capital projects. It is estimated that the following cash flows will be derived from operations with this new machine:

Year	Cash flow
1	N\$155 000
2	N\$144 000
3	N\$75 000
4	N\$ 61 000
5	N\$12 161

Additional information:

The factory supervisor is of the opinion that this machine will have an economic useful life of 5 years after which it will most probably have no resale value.

REQUI	REQUIRED:	
a)	Make a recommendation to the management of the corporation as to the viability of investing in this machine. Make use of the net present value method.	10
b)	Calculate the discounted payback period of the project	10
c)	c) Mr Nicol, one of the senior members of the corporation has stated that, according to his calculations, the <u>actual</u> rate of return of this investment is 15%. State, with reasons, whether you agree with Mr Nicol or not. You may substantiate your statement with the aid of additional calculations	

END OF EXAMINATION QUESTION PAPER

APPENDIX TABLE 1

Present Value Tables

Number								Inter	est Rate	per Year	r					
ofYears	1%	2%	3%	4%	5%	6%	7%	8%	9%	10%	11%	12%	13%	14% 1	5%	
1	.990	.980	.971	.962	.952	.943	.935	.926	.917	.909	.901	.893	.885	.877	.870	
2	.980	.961	.943	.925	.907	.890	.873	.857	.842	.826	.812	.797	.783	.769	.756	
3	.971	.942	.915	.889	.864	.840	.816	.794	.772	.751	.731	.712	.693	.675	.658	
4	.961	.924	.888	.855	.823	.792	.763	.735	.708	.683	.659	.636	.613	.592	.572	
5	.951	.906	.863	.822	.784	.747	.713	.681	.650	.621	.593	.567	.543	.519	.497	
				1011					1000	1011	1000		10 10	.010		
6	.942	.888	.837	.790	.746	.705	.666	.630	.596	.564	.535	.507	.480	.456	.432	
7	.933	.871	.813	.760	.711	.665	.623	.583	.547	.513	.482	.452	.425	.400	.376	
8	.923	.853	.789	.731	.677	.627	.582	.540	.502	.467	.434	.404	.376	.351	.327	
9	.914	.837	.766	.703	.645	.592	.544	.500	.460	.424	.391	.361	.333	.308	.284	
10	.905	.820	.744	.676	.614	.558	.508	.463	.422	.386	.352	.322	.295	.270	.247	
11	.896	.804	.722	.650	.585	.527	.475	.429	.388	.350	.317	.287	.261	.237	.215	
12	.890	.788	.701	.625	.565	.497	.475	.429	.356	.319	.286	.267	.201	.208	.187	
12	.887	.788	.681	.625	.537	.497	.444	.368	.356	.290	.286		.231	.208	.187	
14	.879	.758			.505				.320							
			.661	.577		.442	.388	.340		.263	.232		.181	.160	.141	
15	.861	.743	.642	.555	.481	.417	.362	.315	.275	.239	.209	.183	.160	.140	.123	
16	.853	.728	.623	.534	.458	.394	.339	.292	.252	.218	.188	.163	.141	.123	.107	
17	.844	.714	.605	.513	.436	.371	.317	.270	.231	.198	.170	.146	.125	.108	.093	
18	.836	.700	.587	.494	.416	.350	.296	.250	.212	.180	.153		.111		.081	
19	.828	.686	.570	.475	.396	.331	.277	.232	.194	.164	.138		.098		.070	
20	.820	.673	.554	.456	.377	.312	.258	.215	.178	.149	.124		.087	.073	.061	
	factors:	Present	t value o	f \$1 to t	be receiv	ed after	t years			e per Yea	ır					
Number	factors:	Present	t value o	f \$1 to b		ed after	t years			e per Yea	ar 26%	27%	28%	29%	30%	
Number of Years	16%	17%	18%	19%	20%	21%	22%	Inter 23%	est Rat 24%	25%	26%					
Number of Years 1	16% .862	17% .855	18% .847	19% .840	20% .833	21% .826	22% .820	Inter 23% .813	est Rat 24% .806	25%	26% .794	.787	.781	.775	.769	
Number of Years 1 2	16% .862 .743	17% .855 .731	18% .847 .718	19% .840 .706	20% .833 .694	21% .826 .683	22% .820 .672	Inter 23% .813 .661	est Rat 24% .806 .650	25% .800 .640	26% .794 .630	.787 .620	.781 .610	.775 .601	.769 .592	
Number of Years 1 2 3	16% .862 .743 .641	17% .855 .731 .624	18% .847 .718 .609	19% .840 .706 .593	20% .833 .694 .579	21% .826 .683 .564	22% .820 .672 .551	Inter 23% .813 .661 .537	24% .806 .650 .524	25% .800 .640 .512	26% .794 .630 .500	.787 .620 .488	.781 .610 .477	.775 .601 .466	.769 .592 .455	
Number of Years 1 2 3 4	16% .862 .743 .641 .552	17% .855 .731 .624 .534	18% .847 .718 .609 .516	19% .840 .706 .593 .499	20% .833 .694 .579 .482	21% .826 .683 .564 .467	22% .820 .672 .551 .451	Inter 23% .813 .661 .537 .437	.806 .650 .524 .423	25% .800 .640 .512 .410	26% .794 .630 .500 .397	.787 .620 .488 .384	.781 .610 .477 .373	.775 .601 .466 .361	.769 .592 .455 .350	
Number of Years 1 2 3	16% .862 .743 .641	17% .855 .731 .624	18% .847 .718 .609	19% .840 .706 .593	20% .833 .694 .579	21% .826 .683 .564	22% .820 .672 .551	Inter 23% .813 .661 .537	24% .806 .650 .524	25% .800 .640 .512	26% .794 .630 .500	.787 .620 .488	.781 .610 .477	.775 .601 .466	.769 .592 .455	
Number of Years 1 2 3 4 5	16% .862 .743 .641 .552 .476	17% .855 .731 .624 .534 .456	18% .847 .718 .609 .516 .437	19% .840 .706 .593 .499 .419	20% .833 .694 .579 .482 .402	21% .826 .683 .564 .467 .386	22% .820 .672 .551 .451 .370	Inter 23% .813 .661 .537 .437 .355	24% .806 .650 .524 .423 .341	25% .800 .640 .512 .410 .328	26% .794 .630 .500 .397 .315	.787 .620 .488 .384 .303	.781 .610 .477 .373 .291	.775 .601 .466 .361 .280	.769 .592 .455 .350 .269	
Number of Years 1 2 3 4 5 6	16% .862 .743 .641 .552 .476 .410	17% .855 .731 .624 .534 .456 .390	18% .847 .718 .609 .516 .437 .370	19% .840 .706 .593 .499 .419 .352	20% .833 .694 .579 .482 .402 .335	21% .826 .683 .564 .467 .386 .319	22% .820 .672 .551 .451 .370 .303	Inter 23% .813 .661 .537 .437 .355 .289	est Rat 24% .806 .650 .524 .423 .341 .275	25% .800 .640 .512 .410 .328 .262	26% .794 .630 .500 .397 .315 .250	.787 .620 .488 .384 .303 .238	.781 .610 .477 .373 .291 .227	.775 .601 .466 .361 .280 .217	.769 .592 .455 .350 .269 .207	
Number of Years 1 2 3 4 5 6 7	16% .862 .743 .641 .552 .476 .410 .354	17% .855 .731 .624 .534 .456 .390 .333	18% .847 .718 .609 .516 .437 .370 .314	19% .840 .706 .593 .499 .419 .352 .296	20% .833 .694 .579 .482 .402 .335 .279	21% .826 .683 .564 .467 .386 .319 .263	22% .820 .672 .551 .451 .370 .303 .249	Inter 23% .813 .661 .537 .437 .355 .289 .235	est Rat 24% .806 .650 .524 .423 .341 .275 .222	25% .800 .640 .512 .410 .328 .262 .210	26% .794 .630 .500 .397 .315 .250 .198	.787 .620 .488 .384 .303 .238 .188	.781 .610 .477 .373 .291 .227 .178	.775 .601 .466 .361 .280 .217 .168	.769 .592 .455 .350 .269 .207 .159	
Number of Years 1 2 3 4 5 6 7 8	16% .862 .743 .641 .552 .476 .410 .354 .305	17% .855 .731 .624 .534 .456 .390 .333 .285	18% .847 .718 .609 .516 .437 .370 .314 .266	19% .840 .706 .593 .499 .419 .352 .296 .249	20% .833 .694 .579 .482 .402 .335 .279 .233	21% .826 .683 .564 .467 .386 .319 .263 .218	22% .820 .672 .551 .451 .370 .303 .249 .204	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179	25% .800 .640 .512 .410 .328 .262 .210 .168	26% .794 .630 .500 .397 .315 .250 .198 .157	.787 .620 .488 .384 .303 .238 .188 .148	.781 .610 .477 .373 .291 .227 .178 .139	.775 .601 .466 .361 .280 .217 .168 .130	.769 .592 .455 .350 .269 .207 .159 .123	
Number of Years 1 2 3 4 5 6 7 8 9	16% .862 .743 .641 .552 .476 .410 .354 .305 .263	17% .855 .731 .624 .534 .456 .390 .333 .285 .243	18% .847 .718 .609 .516 .437 .370 .314 .266 .225	19% .840 .706 .593 .499 .419 .352 .296 .249 .209	20% .833 .694 .579 .482 .402 .335 .279 .233 .194	21% .826 .683 .564 .467 .386 .319 .263 .218 .180	22% .820 .672 .551 .451 .370 .303 .249 .204 .167	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179 .144	25% .800 .640 .512 .410 .328 .262 .210	26% .794 .630 .500 .397 .315 .250 .198	.787 .620 .488 .384 .303 .238 .188 .148	.781 .610 .477 .373 .291 .227 .178	.775 .601 .466 .361 .280 .217 .168	.769 .592 .455 .350 .269 .207 .159	
Number of Years 1 2 3 4 5 6 7 8 9 10	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227	17% .855 .731 .624 .456 .390 .333 .285 .243 .208	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149	22% .820 .672 .551 .451 .370 .303 .249 .204 .167 .137	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073	
Number of Years 1 2 3 4 5 6 7 8 9 10 11	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123	22% .820 .672 .551 .370 .303 .249 .204 .167 .137 .112	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .079	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056	
Number of Years 1 2 3 4 5 6 7 8 9 10	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227	17% .855 .731 .624 .456 .390 .333 .285 .243 .208	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102	22% .820 .672 .551 .370 .303 .249 .204 .167 .137 .112 .092	Inter 23% .813 .661 .537 .437 .355 .289 .235 .126 .125 .126 .103 .083	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .076	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .079 .062	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043	
Number of Years 1 2 3 4 5 6 7 8 9 10 11	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123	22% .820 .672 .551 .370 .303 .249 .204 .167 .137 .112	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .079	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .037	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043 .033	
Number of Years 1 2 3 4 5 6 7 8 9 10 11 12	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195 .168	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178 .152	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162 .137	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148 .124	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102	22% .820 .672 .551 .370 .303 .249 .204 .167 .137 .112 .092	Inter 23% .813 .661 .537 .437 .355 .289 .235 .126 .125 .126 .103 .083	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .076	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .079 .062	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .037	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043	
Number of Years 1 2 3 4 5 6 7 8 9 10 11 12 13	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195 .168 .145	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178 .152 .130	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162 .137 .116	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148 .124 .104	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112 .093	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102 .084	22% .820 .672 .551 .451 .370 .303 .249 .204 .167 .137 .112 .092 .075	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103 .083 .068	.806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .076 .061	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069 .055	26% .794 .630 .397 .315 .250 .198 .157 .125 .099 .079 .062 .050	.787 .620 .488 .384 .303 .238 .148 .116 .092 .072 .057 .045 .035	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052 .040	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .037	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043 .033	
Number of Years 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195 .168 .145 .125 .108	17% .855 .731 .624 .456 .390 .333 .285 .243 .208 .178 .152 .130 .111 .095	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162 .137 .116 .099 .084	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148 .124 .104 .088 .074	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112 .093 .078 .065	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102 .084 .069 .057	22% .820 .672 .551 .451 .370 .303 .249 .204 .167 .137 .112 .092 .075 .062 .051	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103 .083 .068 .055 .045	est Rat 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .061 .049 .040	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069 .055 .044 .035	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .079 .062 .050 .039 .031	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057 .045 .035 .028	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052 .040 .032 .025	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .028 .022	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043 .033 .025 .020	
Number of Years 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195 .168 .145 .125 .108 .093	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178 .152 .130 .111 .095 .081	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162 .137 .116 .099 .084 .071	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148 .124 .04 .088 .074	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112 .093 .078 .065	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102 .084 .057 .047	22% .820 .672 .551 .451 .370 .303 .249 .204 .167 .137 .112 .092 .075 .062 .051 .042	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103 .083 .045 .045 .036	24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .040 .040 .032	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069 .055 .044 .035	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .062 .050 .039 .031 .025	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057 .055 .035 .028	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052 .040 .032 .025 .019	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .028 .022 .017	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043 .033 .025 .020 .015	
Number of Years 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195 .168 .145 .125 .108 .093 .080	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178 .152 .130 .111 .095 .081 .069	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162 .137 .116 .099 .084 .071 .060	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148 .124 .104 .088 .074 .062 .052	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112 .093 .078 .065 .054 .045	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102 .084 .057 .047 .039	22% .820 .672 .551 .451 .370 .303 .249 .204 .167 .137 .112 .092 .075 .062 .051 .042 .034	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103 .083 .083 .068 .045 .045 .036 .030	24% 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .076 .061 .049 .040 .040 .032 .026	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069 .055 .044 .035 .028 .023	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .062 .050 .039 .031 .025 .020	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057 .045 .035 .028 .022 .017	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052 .040 .032 .025 .019 .015	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .037 .028 .022 .017 .013	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043 .033 .025 .020 .015 .012	
Number of Years 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195 .168 .145 .125 .108 .093 .080 .069	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178 .152 .130 .111 .095 .081 .069 .059	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162 .137 .116 .099 .084 .071 .060 .051	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148 .124 .104 .088 .074 .062 .052 .044	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112 .093 .078 .065 .054 .045 .038	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102 .084 .069 .057 .047 .039 .032	22% .820 .672 .551 .451 .370 .303 .249 .204 .167 .137 .112 .092 .075 .062 .051 .042 .034 .028	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103 .083 .045 .045 .036 .030 .024	24% 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .076 .061 .049 .040 .040 .032 .026 .021	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069 .055 .044 .035 .028 .023 .018	26% .794 .630 .500 .397 .315 .250 .125 .099 .062 .050 .039 .031 .025 .020 .016	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057 .045 .035 .028 .022 .017 .014	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052 .040 .032 .025 .019 .015 .012	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .037 .028 .022 .017 .013 .010	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043 .033 .025 .020 .015 .012 .009	
2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17	16% .862 .743 .641 .552 .476 .410 .354 .305 .263 .227 .195 .168 .145 .125 .108 .093 .080	17% .855 .731 .624 .534 .456 .390 .333 .285 .243 .208 .178 .152 .130 .111 .095 .081 .069	18% .847 .718 .609 .516 .437 .370 .314 .266 .225 .191 .162 .137 .116 .099 .084 .071 .060	19% .840 .706 .593 .499 .419 .352 .296 .249 .209 .176 .148 .124 .104 .088 .074 .062 .052	20% .833 .694 .579 .482 .402 .335 .279 .233 .194 .162 .135 .112 .093 .078 .065 .054 .045	21% .826 .683 .564 .467 .386 .319 .263 .218 .180 .149 .123 .102 .084 .057 .047 .039	22% .820 .672 .551 .451 .370 .303 .249 .204 .167 .137 .112 .092 .075 .062 .051 .042 .034	Inter 23% .813 .661 .537 .437 .355 .289 .235 .191 .155 .126 .103 .083 .083 .068 .045 .045 .036 .030	24% 24% .806 .650 .524 .423 .341 .275 .222 .179 .144 .116 .094 .076 .061 .049 .040 .040 .032 .026	25% .800 .640 .512 .410 .328 .262 .210 .168 .134 .107 .086 .069 .055 .044 .035 .028 .023 .018 .014	26% .794 .630 .500 .397 .315 .250 .198 .157 .125 .099 .062 .050 .039 .031 .025 .020 .012	.787 .620 .488 .384 .303 .238 .188 .148 .116 .092 .072 .057 .045 .035 .028 .022 .017 .014	.781 .610 .477 .373 .291 .227 .178 .139 .108 .085 .066 .052 .040 .032 .025 .019 .015 .012 .009	.775 .601 .466 .361 .280 .217 .168 .130 .101 .078 .061 .047 .037 .028 .022 .017 .013 .010 .008	.769 .592 .455 .350 .269 .207 .159 .123 .094 .073 .056 .043 .033 .025 .020 .015 .012	