MAT 118, Chapter 10 Sample Questions, Exam on Monday, Nov 8, 2010

There is an attached sheet that contains the calculation needed to compute compound interest (except for simple arithmetic). No calculator is needed. Addition sheets for fixed annuities will be provided on the exam.

(1) ☐ A store buys an item for \$100 and marks it up 50% to sell. Later the item goes on a 50% sale. The sale price is
(a) \$100
(b) \$150
(c) \$50
(d) \$75
(e) \$125
(f) none of these

(2) ☐ In a survey, 40% of people prefered a red car to a blue car and of these people, 60% prefered a gray interior to a tan interior. How many prefer a red car with a tan interior?
(a) 12%
(b) 16%
(c) 24%
(d) 36%
(e) 40%
(f) none of these

(3) ☐ A sequence or equal payments made or received over regular intervals is called a
(a) fixed annuity
(b) deferred annuity
(c) installment loan
(d) compounded interest
(e) simple interest
(f) none of these

(4) ☐ The fixed deferred annuity formula gives the future value of an account into which pay a fixed amount periodically. The formula is given by
(a) $F = L[\frac{p^T - 1}{1+p}]$
(b) $F = L[\frac{(1+p)^T}{1+p}]$
(c) $F = L[\frac{(1+p)^T - 1}{p}]$
(d) $F = L[\frac{(1-p)^T - 1}{p}]$
(e) $F = L[\frac{(1-p)^T}{p}]$
(f) none of these

(5) ☐ Which of the following investements earns the most? (assume a fixed initial amount, no additions, compounded annually).
(a) 13 years at 3%
(b) 10 years at 4%
(c) 8 years at 5%
(d) 6 years at 6%
(e) 5 years at 10%

(6) ☐ If a 4% annual interest rate is compunded monthly the APY is approximately:
(a) 4.00%
(b) 4.01%
(c) 4.02%
(d) 4.03%
(e) 4.04%
(f) 4.45%

(7) ☐ If \$1000 is deposited in a bank with 5% interest compounded annually, approximately how much is the account worth after 7 years?
(a) \$1407
(b) \$1340
(c) \$1316
(d) \$1350
(e) \$1504
(f) none of these

(8) ☐ Suppose \$1000 is put into an account paying 10% annually and \$2000 is put into an account paying 5% annually (both compounded once a year). Approximately how many years do we have to wait for the first account to have more money than the second?
(a) 5
(b) 10
(c) 15
(d) 20
(e) 24

This table contains entries of the form

$$(1+p)^n$$

where p is a decimal version of an interest rate and n is an integer. You may use this in place of a calculator for the problems on this exam. The top row gives the value of p and the first column gives the value of n.

	.25%	.33%	.5%	1%	2%	3%	4%	5%	6%	10%
	1.0025	1.0033	1.005	1.01	1.02	1.03	1.04	1.05	1.06	1.1
1	1.0025	1.0033	1.005	1.01	1.02	1.03	1.04	1.05	1.06	1.1
2	1.005	1.0066	1.01	1.0201	1.0404	1.0609	1.0816	1.1025	1.1236	1.21
3	1.0075	1.0099	1.0151	1.0303	1.0612	1.0927	1.1249	1.1576	1.191	1.331
4	1.01	1.0133	1.0202	1.0406	1.0824	1.1255	1.1699	1.2155	1.2625	1.4641
5	1.0126	1.0166	1.0253	1.051	1.1041	1.1593	1.2167	1.2763	1.3382	1.6105
6	1.0151	1.02	1.0304	1.0615	1.1262	1.1941	1.2653	1.3401	1.4185	1.7716
7	1.0176	1.0233	1.0355	1.0721	1.1487	1.2299	1.3159	1.4071	1.5036	1.9487
8	1.0202	1.0267	1.0407	1.0829	1.1717	1.2668	1.3686	1.4775	1.5938	2.1436
9	1.0227	1.0301	1.0459	1.0937	1.1951	1.3048	1.4233	1.5513	1.6895	2.3579
10	1.0253	1.0335	1.0511	1.1046	1.219	1.3439	1.4802	1.6289	1.7908	2.5937
11	1.0278	1.0369	1.0564	1.1157	1.2434	1.3842	1.5395	1.7103	1.8983	2.8531
12	1.0304	1.0403	1.0617	1.1268	1.2682	1.4258	1.601	1.7959	2.0122	3.1384
13	1.033	1.0438	1.067	1.1381	1.2936	1.4685	1.6651	1.8856	2.1329	3.4523
14	1.0356	1.0472	1.0723	1.1495	1.3195	1.5126	1.7317	1.9799	2.2609	3.7975
15	1.0382	1.0507	1.0777	1.161	1.3459	1.558	1.8009	2.0789	2.3966	4.1772
16	1.0408	1.0541	1.0831	1.1726	1.3728	1.6047	1.873	2.1829	2.5404	4.595
17	1.0434	1.0576	1.0885	1.1843	1.4002	1.6528	1.9479	2.292	2.6928	5.0545
18	1.046	1.0611	1.0939	1.1961	1.4282	1.7024	2.0258	2.4066	2.8543	5.5599
19	1.0486	1.0646	1.0994	1.2081	1.4568	1.7535	2.1068	2.527	3.0256	6.1159
20	1.0512	1.0681	1.1049	1.2202	1.4859	1.8061	2.1911	2.6533	3.2071	6.7275
21	1.0538	1.0716	1.1104	1.2324	1.5157	1.8603	2.2788	2.786	3.3996	7.4002
22	1.0565	1.0752	1.116	1.2447	1.546	1.9161	2.3699	2.9253	3.6035	8.1403
23	1.0591	1.0787	1.1216	1.2572	1.5769	1.9736	2.4647	3.0715	3.8197	8.9543
24	1.0618	1.0823	1.1272	1.2697	1.6084	2.0328	2.5633	3.2251	4.0489	9.8497
25	1.0644	1.0859	1.1328	1.2824	1.6406	2.0938	2.6658	3.3864	4.2919	10.835
26	1.0671	1.0894	1.1385	1.2953	1.6734	2.1566	2.7725	3.5557	4.5494	11.918
27	1.0697	1.093	1.1442	1.3082	1.7069	2.2213	2.8834	3.7335	4.8223	13.11
28	1.0724	1.0966	1.1499	1.3213	1.741	2.2879	2.9987	3.9201	5.1117	14.421
29	1.0751	1.1003	1.1556	1.3345	1.7758	2.3566	3.1187	4.1161	5.4184	15.863
30	1.0778	1.1039	1.1614	1.3478	1.8114	2.4273	3.2434	4.3219	5.7435	17.449
36	1.0941	1.1259	1.1967	1.4308	2.0399	2.8983	4.1039	5.7918	8.1473	30.913
48	1.1273	1.1713	1.2705	1.6122	2.5871	4.1323	6.5705	10.401	16.394	97.017
52	1.1386	1.1869	1.2961	1.6777	2.8003	4.6509	7.6866	12.643	20.697	142.04
60	1.1616	1.2186	1.3489	1.8167	3.281	5.8916	10.52	18.679	32.988	304.48
72	1.1969	1.2677	1.432	2.0471	4.1611	8.4	16.842	33.545	66.378	955.59
84	1.2334	1.3188	1.5204	2.3067	5.2773	11.976	26.965	60.242	133.57	2999.1
96	1.2709	1.372	1.6141	2.5993	6.6929	17.076	43.172	108.19	268.76	9412.3
108	1.3095	1.4273	1.7137	2.9289	8.4883	24.346	69.12	194.29	540.8	29540
120	1.3494	1.4849	1.8194	3.3004	10.765	34.711	110.66	348.91	1088.2	92709