



دانشگاه صنعتی امیرکبیر
دانشکده مهندسی هوافضا

عنوان

تکلیف شماره 2

نگارش

فاطمه مقدسیان

استاد :

دکتر سبزه پرور

۱- محاسبه متغیرهای اتمسفر زمین و مقایسه با جدول استاندارد

۲- ارائه پاسخ سؤال ۱ در سیستم متریک

ISA +20 -3

ISA-20 -4

۵- رسم منحنی ها آن را هم رسم کنید.

Altitude	Temperature	Pressure	Density	Kinetic Viscosity	Speed of Sound
0	288.15	101325	1.22500002	0.00001461	340.293988
100	287.5000102	100129.4565	1.21328297	0.00001472	339.909965
200	286.8500409	98945.39814	1.20165221	0.00001484	339.5255197
300	286.200092	97772.73992	1.19010731	0.00001496	339.1406507
400	285.5501636	96611.39711	1.17864782	0.00001507	338.7553565
500	284.9002556	95461.28549	1.16727328	0.00001519	338.3696358
600	284.2503681	94322.32125	1.15598328	0.00001532	337.9834871
700	283.600501	93194.42104	1.14477735	0.00001544	337.5969088
800	282.9506543	92077.50195	1.13365506	0.00001556	337.2098996
900	282.3008281	90971.48148	1.12261598	0.00001569	336.8224578
1,000	281.6510224	89876.2776	1.11165967	0.00001581	336.4345821
1,100	281.0012371	88791.80871	1.1007857	0.00001594	336.0462709
1,200	280.3514722	87717.99362	1.08999362	0.00001607	335.6575227
1,300	279.7017277	86654.75159	1.07928301	0.0000162	335.2683361
1,400	279.0520037	85602.00233	1.06865343	0.00001633	334.8787093
1,500	278.4023002	84559.66593	1.05810446	0.00001646	334.488641
1,600	277.752617	83527.66295	1.04763567	0.0000166	334.0981296
1,700	277.1029543	82505.91436	1.03724663	0.00001673	333.7071735
1,800	276.4533121	81494.34157	1.02693691	0.00001687	333.3157712
1,900	275.8036902	80492.86639	1.01670609	0.00001701	332.923921
2,000	275.1540888	79501.41107	1.00655375	0.00001715	332.5316214
2,100	274.5045079	78519.89828	0.99647947	0.00001729	332.1388709
2,200	273.8549474	77548.2511	0.98648281	0.00001743	331.7456677
2,300	273.2054072	76586.39305	0.97656337	0.00001758	331.3520103
2,400	272.5558876	75634.24805	0.96672073	0.00001772	330.9578971
2,500	271.9063883	74691.74043	0.95695447	0.00001787	330.5633265
2,600	271.2569095	73758.79496	0.94726417	0.00001802	330.1682967
2,700	270.6074511	72835.3368	0.93764942	0.00001817	329.7728062
2,800	269.9580131	71921.29154	0.92810981	0.00001832	329.3768532
2,900	269.3085956	71016.58516	0.91864492	0.00001847	328.9804362
3,000	268.6591985	70121.14407	0.90925435	0.00001863	328.5835534
3,100	268.0098218	69234.89507	0.89993768	0.00001878	328.1862031

3,200	267.3604655	68357.7654	0.89069451	0.00001894	327.7883837
3,300	266.7111296	67489.68265	0.88152443	0.0000191	327.3900935
3,400	266.0618142	66630.57488	0.87242704	0.00001927	326.9913306
3,500	265.4125191	65780.37049	0.86340194	0.00001943	326.5920934
3,600	264.7632445	64938.99833	0.85444871	0.00001959	326.1923802
3,700	264.1139903	64106.38763	0.84556696	0.00001976	325.7921891
3,800	263.4647566	63282.46802	0.83675629	0.00001993	325.3915185
3,900	262.8155432	62467.16953	0.8280163	0.0000201	324.9903665
4,000	262.1663502	61660.42257	0.8193466	0.00002027	324.5887314
4,100	261.5171777	60862.15798	0.81074678	0.00002045	324.1866113
4,200	260.8680256	60072.30697	0.80221646	0.00002063	323.7840046
4,300	260.2188939	59290.80114	0.79375523	0.0000208	323.3809092
4,400	259.5697825	58517.57249	0.78536271	0.00002098	322.9773234
4,500	258.9206916	57752.55341	0.7770385	0.00002117	322.5732455
4,600	258.2716211	56995.67667	0.76878222	0.00002135	322.1686734
4,700	257.6225711	56246.87545	0.76059348	0.00002154	321.7636054
4,800	256.9735414	55506.08328	0.75247189	0.00002173	321.3580396
4,900	256.3245321	54773.2341	0.74441706	0.00002192	320.951974
5,000	255.6755432	54048.26224	0.73642861	0.00002211	320.5454069
5,100	255.0265748	53331.10238	0.72850616	0.00002231	320.1383362
5,200	254.3776267	52621.68962	0.72064933	0.0000225	319.7307601
5,300	253.728699	51919.9594	0.71285772	0.0000227	319.3226765
5,400	253.0797917	51225.84758	0.70513097	0.0000229	318.9140837
5,500	252.4309049	50539.29036	0.6974687	0.00002311	318.5049796
5,600	251.7820384	49860.22434	0.68987052	0.00002331	318.0953622
5,700	251.1331923	49188.58647	0.68233607	0.00002352	317.6852295
5,800	250.4843666	48524.31411	0.67486497	0.00002373	317.2745796
5,900	249.8355614	47867.34496	0.66745684	0.00002395	316.8634105
6,000	249.1867765	47217.6171	0.66011132	0.00002416	316.45172
6,100	248.538012	46575.06898	0.65282803	0.00002438	316.0395062
6,200	247.8892679	45939.63942	0.6456066	0.0000246	315.6267671
6,300	247.2405441	45311.2676	0.63844667	0.00002482	315.2135005
6,400	246.5918408	44689.89308	0.63134787	0.00002505	314.7997044
6,500	245.9431579	44075.45576	0.62430983	0.00002528	314.3853767
6,600	245.2944953	43467.89593	0.61733219	0.00002551	313.9705152
6,700	244.6458532	42867.15422	0.61041458	0.00002574	313.555118
6,800	243.9972314	42273.17164	0.60355665	0.00002598	313.1391827
6,900	243.34863	41685.88954	0.59675803	0.00002622	312.7227074
7,000	242.700049	41105.24963	0.59001837	0.00002646	312.3056898
7,100	242.0514884	40531.19399	0.5833373	0.00002671	311.8881277
7,200	241.4029481	39963.66505	0.57671447	0.00002695	311.470019
7,300	240.7544283	39402.60559	0.57014952	0.0000272	311.0513614
7,400	240.1059288	38847.95874	0.5636421	0.00002746	310.6321528

7,500	239.4574497	38299.66798	0.55719186	0.00002771	310.2123909
7,600	238.808991	37757.67716	0.55079844	0.00002797	309.7920734
7,700	238.1605526	37221.93046	0.54446149	0.00002824	309.3711981
7,800	237.5121346	36692.37241	0.53818067	0.0000285	308.9497627
7,900	236.863737	36168.94789	0.53195562	0.00002877	308.5277649
8,000	236.2153598	35651.60212	0.52578601	0.00002904	308.1052024
8,100	235.567003	35140.28068	0.51967147	0.00002932	307.6820729
8,200	234.9186665	34634.92946	0.51361167	0.0000296	307.258374
8,300	234.2703504	34135.49473	0.50760627	0.00002988	306.8341034
8,400	233.6220547	33641.92308	0.50165493	0.00003017	306.4092587
8,500	232.9737793	33154.16143	0.49575729	0.00003046	305.9838375
8,600	232.3255243	32672.15706	0.48991303	0.00003075	305.5578373
8,700	231.6772897	32195.85757	0.4841218	0.00003105	305.1312559
8,800	231.0290755	31725.2109	0.47838327	0.00003135	304.7040906
8,900	230.3808816	31260.16532	0.4726971	0.00003165	304.2763391
9,000	229.732708	30800.66944	0.46706296	0.00003196	303.8479989
9,100	229.0845549	30346.67221	0.46148052	0.00003227	303.4190675
9,200	228.4364221	29898.12288	0.45594943	0.00003258	302.9895424
9,300	227.7883096	29454.97106	0.45046938	0.0000329	302.559421
9,400	227.1402176	29017.16666	0.44504003	0.00003323	302.1287009
9,500	226.4921459	28584.65995	0.43966105	0.00003355	301.6973793
9,600	225.8440945	28157.4015	0.43433211	0.00003388	301.2654539
9,700	225.1960635	27735.34221	0.4290529	0.00003422	300.8329219
9,800	224.5480529	27318.4333	0.42382308	0.00003456	300.3997807
9,900	223.9000626	26906.62631	0.41864233	0.0000349	299.9660277
10,000	223.2520927	26499.87312	0.41351033	0.00003525	299.5316603
10,100	222.6041431	26098.12591	0.40842676	0.0000356	299.0966757
10,200	221.9562139	25701.33718	0.40339129	0.00003596	298.6610713
10,300	221.308305	25309.45975	0.39840361	0.00003632	298.2248443
10,400	220.6604165	24922.44675	0.39346341	0.00003669	297.787992
10,500	220.0125483	24540.25163	0.38857036	0.00003706	297.3505117
10,600	219.3647005	24162.82816	0.38372415	0.00003744	296.9124005
10,700	218.716873	23790.13041	0.37892446	0.00003782	296.4736558
10,800	218.0690659	23422.11275	0.37417099	0.0000382	296.0342746
10,900	217.4212791	23058.7299	0.36946342	0.00003859	295.5942541
11,000	216.7735127	22699.93684	0.36480144	0.00003899	295.1535915
11,100	216.65	22345.99368	0.35931809	0.00003956	295.0694935
11,200	216.65	21997.60034	0.35371601	0.00004019	295.0694935
11,300	216.65	21654.64944	0.34820145	0.00004083	295.0694935
11,400	216.65	21317.05579	0.34277302	0.00004147	295.0694935
11,500	216.65	20984.73555	0.3374294	0.00004213	295.0694935
11,600	216.65	20657.60618	0.33216924	0.0000428	295.0694935
11,700	216.65	20335.58643	0.32699124	0.00004348	295.0694935

11,800	216.65	20018.59635	0.32189411	0.00004416	295.0694935
11,900	216.65	19706.55721	0.3168766	0.00004486	295.0694935
12,000	216.65	19399.39154	0.31193745	0.00004557	295.0694935
12,100	216.65	19097.02308	0.30707544	0.0000463	295.0694935
12,200	216.65	18799.37676	0.30228936	0.00004703	295.0694935
12,300	216.65	18506.37868	0.29757803	0.00004777	295.0694935
12,400	216.65	18217.95611	0.29294026	0.00004853	295.0694935
12,500	216.65	17934.03747	0.28837492	0.0000493	295.0694935
12,600	216.65	17654.55228	0.28388087	0.00005008	295.0694935
12,700	216.65	17379.43117	0.27945699	0.00005087	295.0694935
12,800	216.65	17108.60588	0.27510218	0.00005168	295.0694935
12,900	216.65	16842.00918	0.27081537	0.00005249	295.0694935
13,000	216.65	16579.57494	0.26659549	0.00005332	295.0694935
13,100	216.65	16321.23802	0.2624415	0.00005417	295.0694935
13,200	216.65	16066.93434	0.25835236	0.00005503	295.0694935
13,300	216.65	15816.6008	0.25432706	0.0000559	295.0694935
13,400	216.65	15570.1753	0.2503646	0.00005678	295.0694935
13,500	216.65	15327.59671	0.24646399	0.00005768	295.0694935
13,600	216.65	15088.80486	0.24262428	0.00005859	295.0694935
13,700	216.65	14853.74052	0.2388445	0.00005952	295.0694935
13,800	216.65	14622.34539	0.23512372	0.00006046	295.0694935
13,900	216.65	14394.56208	0.23146102	0.00006142	295.0694935
14,000	216.65	14170.33411	0.22785549	0.00006239	295.0694935
14,100	216.65	13949.60588	0.22430624	0.00006338	295.0694935
14,200	216.65	13732.32265	0.22081238	0.00006438	295.0694935
14,300	216.65	13518.43055	0.21737304	0.0000654	295.0694935
14,400	216.65	13307.87655	0.21398739	0.00006643	295.0694935
14,500	216.65	13100.60846	0.21065457	0.00006749	295.0694935
14,600	216.65	12896.57489	0.20737376	0.00006855	295.0694935
14,700	216.65	12695.72526	0.20414415	0.00006964	295.0694935
14,800	216.65	12498.0098	0.20096493	0.00007074	295.0694935
14,900	216.65	12303.3795	0.19783532	0.00007186	295.0694935
15,000	216.65	12111.78613	0.19475455	0.000073	295.0694935
15,100	216.65	11923.18221	0.19172184	0.00007415	295.0694935
15,200	216.65	11737.52099	0.18873646	0.00007532	295.0694935
15,300	216.65	11554.75648	0.18579765	0.00007651	295.0694935
15,400	216.65	11374.84339	0.18290469	0.00007772	295.0694935
15,500	216.65	11197.73715	0.18005686	0.00007895	295.0694935
15,600	216.65	11023.39388	0.17725347	0.0000802	295.0694935
15,700	216.65	10851.77039	0.1744938	0.00008147	295.0694935
15,800	216.65	10682.82418	0.17177719	0.00008276	295.0694935
15,900	216.65	10516.51339	0.16910295	0.00008407	295.0694935
16,000	216.65	10352.79684	0.16647043	0.0000854	295.0694935

16,100	216.65	10191.63397	0.16387897	0.00008675	295.0694935
16,200	216.65	10032.98487	0.16132793	0.00008812	295.0694935
16,300	216.65	9876.810272	0.15881668	0.00008951	295.0694935
16,400	216.65	9723.071489	0.1563446	0.00009093	295.0694935
16,500	216.65	9571.730459	0.15391108	0.00009237	295.0694935
16,600	216.65	9422.749712	0.1515155	0.00009383	295.0694935
16,700	216.65	9276.092367	0.14915729	0.00009531	295.0694935
16,800	216.65	9131.722118	0.14683585	0.00009682	295.0694935
16,900	216.65	8989.603228	0.14455061	0.00009835	295.0694935
17,000	216.65	8849.700519	0.14230101	0.0000999	295.0694935
17,100	216.65	8711.979366	0.14008649	0.00010148	295.0694935
17,200	216.65	8576.405682	0.1379065	0.00010309	295.0694935
17,300	216.65	8442.945918	0.1357605	0.00010471	295.0694935
17,400	216.65	8311.567048	0.13364796	0.00010637	295.0694935
17,500	216.65	8182.236562	0.13156836	0.00010805	295.0694935
17,600	216.65	8054.922461	0.12952118	0.00010976	295.0694935
17,700	216.65	7929.593246	0.12750591	0.00011149	295.0694935
17,800	216.65	7806.21791	0.12552207	0.00011326	295.0694935
17,900	216.65	7684.765933	0.12356915	0.00011505	295.0694935
18,000	216.65	7565.207272	0.12164668	0.00011686	295.0694935
18,100	216.65	7447.512354	0.11975417	0.00011871	295.0694935
18,200	216.65	7331.652068	0.11789117	0.00012059	295.0694935
18,300	216.65	7217.597762	0.1160572	0.00012249	295.0694935
18,400	216.65	7105.321227	0.11425182	0.00012443	295.0694935
18,500	216.65	6994.7947	0.11247458	0.00012639	295.0694935
18,600	216.65	6885.990851	0.11072504	0.00012839	295.0694935
18,700	216.65	6778.882776	0.10900277	0.00013042	295.0694935
18,800	216.65	6673.443995	0.10730734	0.00013248	295.0694935
18,900	216.65	6569.64844	0.10563833	0.00013457	295.0694935
19,000	216.65	6467.470451	0.10399534	0.0001367	295.0694935
19,100	216.65	6366.884771	0.10237794	0.00013886	295.0694935
19,200	216.65	6267.866537	0.10078576	0.00014105	295.0694935
19,300	216.65	6170.391276	0.09921838	0.00014328	295.0694935
19,400	216.65	6074.434895	0.09767542	0.00014554	295.0694935
19,500	216.65	5979.973682	0.09615651	0.00014784	295.0694935
19,600	216.65	5886.984293	0.09466126	0.00015018	295.0694935
19,700	216.65	5795.44375	0.09318931	0.00015255	295.0694935
19,800	216.65	5705.329435	0.0917403	0.00015496	295.0694935
19,900	216.65	5616.619083	0.09031386	0.00015741	295.0694935
20,000	216.65	5529.290778	0.08890964	0.00015989	295.0694935
20,100	216.6866444	5443.327867	0.08751257	0.00016247	295.0944467
20,200	216.7860135	5358.732639	0.08611304	0.00016517	295.1621017
20,300	216.8853794	5275.49257	0.08473656	0.00016792	295.2297391

20,400	216.9847422	5193.585304	0.08338274	0.00017071	295.2973589
20,500	217.0841019	5112.988865	0.0820512	0.00017355	295.3649611
20,600	217.1834584	5033.681652	0.08074155	0.00017643	295.4325457
20,700	217.2828119	4955.642427	0.07945344	0.00017936	295.5001128
20,800	217.3821622	4878.850314	0.07818649	0.00018234	295.5676623
20,900	217.4815094	4803.28479	0.07694034	0.00018536	295.6351942
21,000	217.5808535	4728.925679	0.07571465	0.00018843	295.7027086
21,100	217.6801945	4655.753148	0.07450907	0.00019156	295.7702054
21,200	217.7795324	4583.747698	0.07332326	0.00019473	295.8376848
21,300	217.8788672	4512.89016	0.07215688	0.00019795	295.9051466
21,400	217.9781988	4443.161688	0.07100962	0.00020123	295.9725909
21,500	218.0775273	4374.543757	0.06988114	0.00020455	296.0400178
21,600	218.1768527	4307.018152	0.06877113	0.00020793	296.1074272
21,700	218.276175	4240.566966	0.06767927	0.00021137	296.1748192
21,800	218.3754942	4175.172596	0.06660528	0.00021486	296.2421937
21,900	218.4748103	4110.817733	0.06554883	0.00021841	296.3095507
22,000	218.5741233	4047.485361	0.06450964	0.00022201	296.3768904
22,100	218.6734331	3985.158751	0.06348742	0.00022567	296.4442126
22,200	218.7727398	3923.821454	0.06248189	0.00022939	296.5115175
22,300	218.8720435	3863.457299	0.06149275	0.00023317	296.5788049
22,400	218.971344	3804.050388	0.06051974	0.000237	296.646075
22,500	219.0706413	3745.585087	0.05956259	0.0002409	296.7133277
22,600	219.1699356	3688.046028	0.05862103	0.00024487	296.7805631
22,700	219.2692268	3631.4181	0.0576948	0.00024889	296.8477812
22,800	219.3685148	3575.686444	0.05678364	0.00025298	296.9149819
22,900	219.4677998	3520.836453	0.0558873	0.00025713	296.9821653
23,000	219.5670816	3466.853763	0.05500554	0.00026136	297.0493314
23,100	219.6663603	3413.724251	0.0541381	0.00026564	297.1164803
23,200	219.7656359	3361.434031	0.05328475	0.00027	297.1836118
23,300	219.8649084	3309.969451	0.05244525	0.00027442	297.2507261
23,400	219.9641778	3259.317084	0.05161938	0.00027892	297.3178231
23,500	220.0634441	3209.463731	0.0508069	0.00028349	297.3849029
23,600	220.1627072	3160.396412	0.05000759	0.00028813	297.4519655
23,700	220.2619673	3112.102364	0.04922123	0.00029284	297.5190108
23,800	220.3612242	3064.569038	0.04844761	0.00029763	297.5860389
23,900	220.460478	3017.784093	0.04768651	0.00030249	297.6530499
24,000	220.5597287	2971.735396	0.04693772	0.00030743	297.7200436
24,100	220.6589763	2926.411015	0.04620105	0.00031245	297.7870202
24,200	220.7582208	2881.799217	0.04547628	0.00031755	297.8539797
24,300	220.8574622	2837.888466	0.04476322	0.00032273	297.9209219
24,400	220.9567004	2794.667416	0.04406168	0.00032799	297.9878471
24,500	221.0559356	2752.124912	0.04337146	0.00033334	298.0547551
24,600	221.1551676	2710.249982	0.04269238	0.00033876	298.121646

24,700	221.2543966	2669.03184	0.04202425	0.00034428	298.1885198
24,800	221.3536224	2628.459876	0.04136689	0.00034988	298.2553765
24,900	221.4528451	2588.523658	0.04072011	0.00035557	298.3222162
25,000	221.5520647	2549.212928	0.04008376	0.00036135	298.3890388
25,100	221.6512812	2510.517596	0.03945764	0.00036722	298.4558443
25,200	221.7504946	2472.427742	0.0388416	0.00037318	298.5226328
25,300	221.8497049	2434.933609	0.03823546	0.00037924	298.5894042
25,400	221.9489121	2398.025602	0.03763907	0.00038539	298.6561586
25,500	222.0481161	2361.694285	0.03705226	0.00039164	298.722896
25,600	222.1473171	2325.930379	0.03647487	0.00039799	298.7896165
25,700	222.2465149	2290.724758	0.03590675	0.00040444	298.8563199
25,800	222.3457097	2256.068446	0.03534774	0.00041099	298.9230064
25,900	222.4449013	2221.952617	0.03479769	0.00041764	298.9896759
26,000	222.5440898	2188.368591	0.03425646	0.00042439	299.0563284
26,100	222.6432752	2155.307831	0.0337239	0.00043125	299.122964
26,200	222.7424575	2122.76194	0.03319987	0.00043822	299.1895827
26,300	222.8416367	2090.722661	0.03268423	0.0004453	299.2561844
26,400	222.9408128	2059.181873	0.03217683	0.00045249	299.3227693
26,500	223.0399858	2028.131588	0.03167754	0.00045979	299.3893373
26,600	223.1391557	1997.563951	0.03118624	0.00046721	299.4558883
26,700	223.2383224	1967.471236	0.03070278	0.00047474	299.5224225
26,800	223.3374861	1937.845843	0.03022705	0.00048239	299.5889399
26,900	223.4366466	1908.6803	0.0297589	0.00049016	299.6554404
27,000	223.5358041	1879.967254	0.02929822	0.00049805	299.7219241
27,100	223.6349584	1851.699477	0.02884489	0.00050606	299.7883909
27,200	223.7341097	1823.869857	0.02839878	0.0005142	299.8548409
27,300	223.8332578	1796.471399	0.02795978	0.00052247	299.9212741
27,400	223.9324028	1769.497226	0.02752777	0.00053086	299.9876905
27,500	224.0315447	1742.940569	0.02710263	0.00053939	300.0540902
27,600	224.1306835	1716.794774	0.02668426	0.00054805	300.1204731
27,700	224.2298192	1691.053295	0.02627254	0.00055684	300.1868392
27,800	224.3289518	1665.709692	0.02586736	0.00056577	300.2531885
27,900	224.4280813	1640.757633	0.02546862	0.00057484	300.3195212
28,000	224.5272077	1616.190887	0.0250762	0.00058405	300.3858371
28,100	224.626331	1592.003327	0.02469002	0.0005934	300.4521363
28,200	224.7254512	1568.188925	0.02430996	0.0006029	300.5184188
28,300	224.8245683	1544.741752	0.02393593	0.00061254	300.5846846
28,400	224.9236822	1521.655978	0.02356782	0.00062234	300.6509337
28,500	225.0227931	1498.925864	0.02320554	0.00063229	300.7171661
28,600	225.1219008	1476.545768	0.022849	0.00064239	300.7833819
28,700	225.2210055	1454.51014	0.02249811	0.00065264	300.8495811
28,800	225.3201071	1432.813519	0.02215276	0.00066306	300.9157636
28,900	225.4192055	1411.450533	0.02181287	0.00067364	300.9819294

29,000	225.5183008	1390.415899	0.02147836	0.00068438	301.0480787
29,100	225.6173931	1369.704421	0.02114912	0.00069528	301.1142114
29,200	225.7164822	1349.310983	0.02082509	0.00070636	301.1803274
29,300	225.8155683	1329.230558	0.02050617	0.00071761	301.2464269
29,400	225.9146512	1309.458198	0.02019228	0.00072903	301.3125099
29,500	226.013731	1289.989034	0.01988334	0.00074062	301.3785762
29,600	226.1128077	1270.818279	0.01957927	0.0007524	301.444626
29,700	226.2118814	1251.941222	0.01927998	0.00076435	301.5106593
29,800	226.3109519	1233.35323	0.01898541	0.00077649	301.5766761
29,900	226.4100193	1215.049743	0.01869548	0.00078882	301.6426763
30,000	226.5090836	1197.026277	0.0184101	0.00080134	301.70866
30,100	226.6081448	1179.278421	0.01812921	0.00081405	301.7746273
30,200	226.7072029	1161.801833	0.01785274	0.00082696	301.840578
30,300	226.8062579	1144.592244	0.01758061	0.00084006	301.9065123
30,400	226.9053099	1127.645453	0.01731275	0.00085337	301.9724302





