



## Remediation Analysis, Kaplan Test Prep

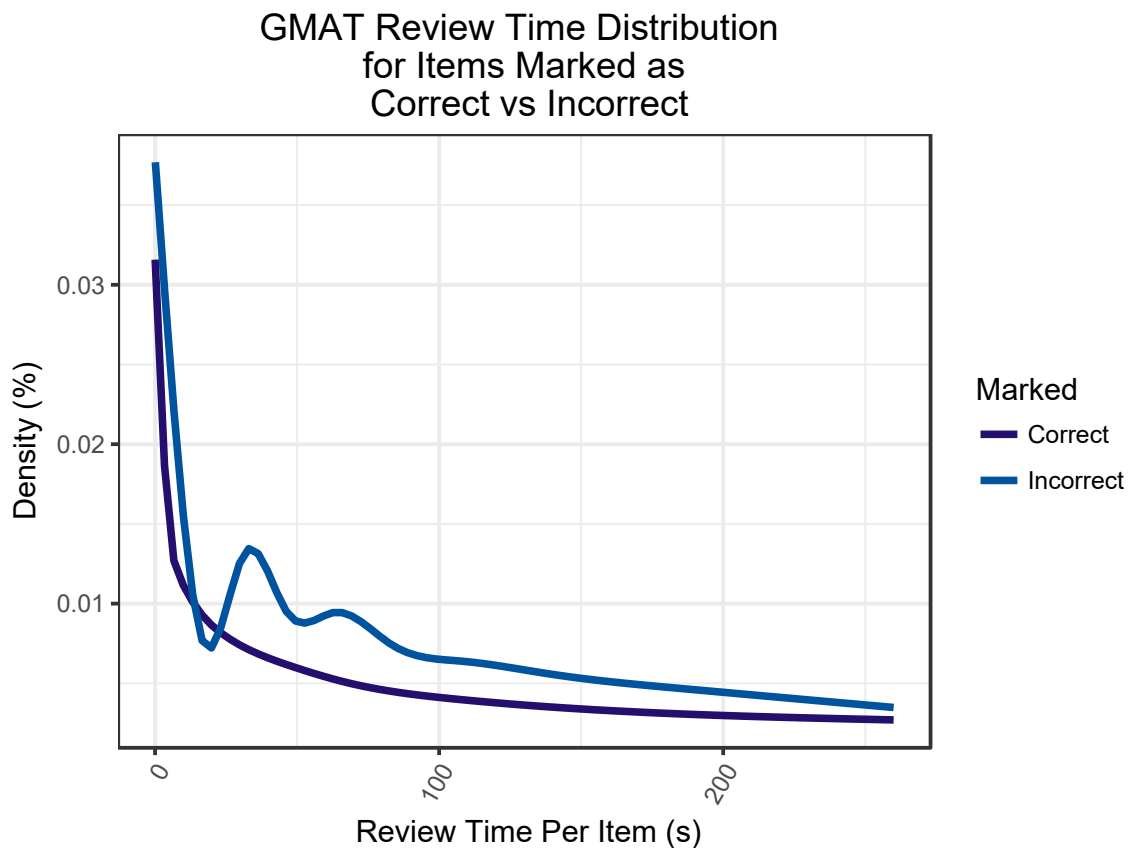
10 April, 2019

## Introduction

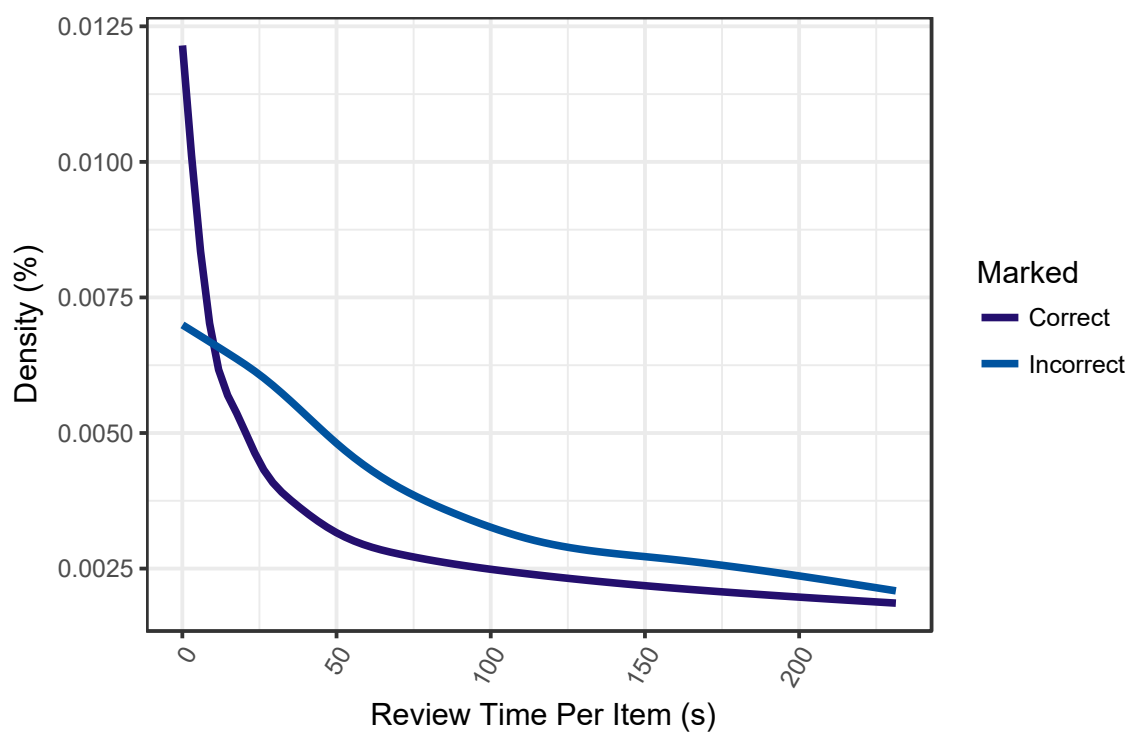
To more accurately understand the behavior of students in regards to the time spent reviewing items, this analysis was performed on a dataset consisting of 185067 items across 79 products within 6 programs, and the time students spent answering and reviewing that item. The data consists of items completed in between December 1, 2018 and February 1, 2019.

## Distribution of Data

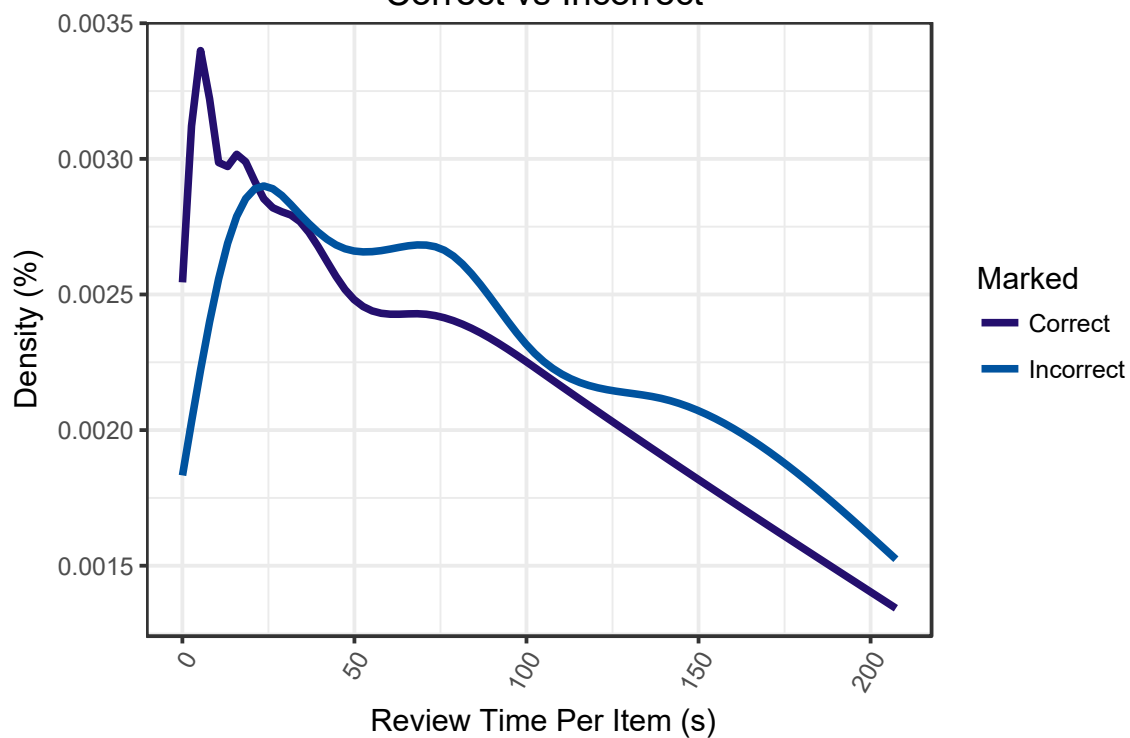
This first section will explore the general trends of these items, split out by program and whether the items were marked as correct or incorrect.



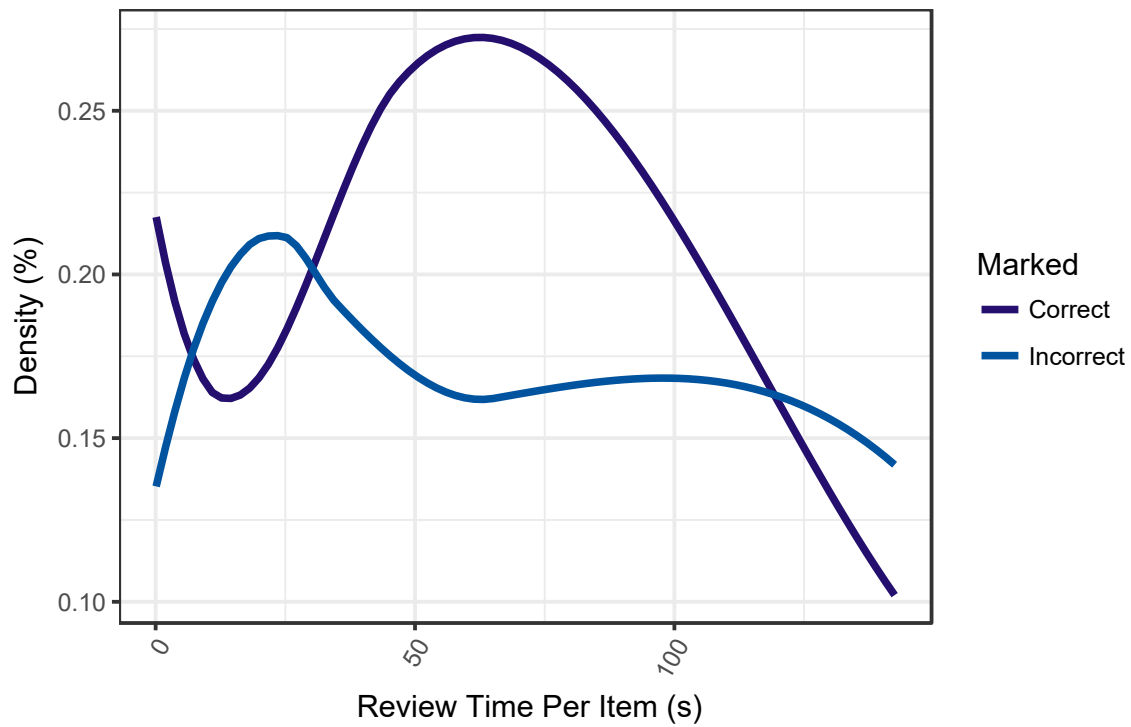
MCAT Review Time Distribution  
for Items Marked as  
Correct vs Incorrect



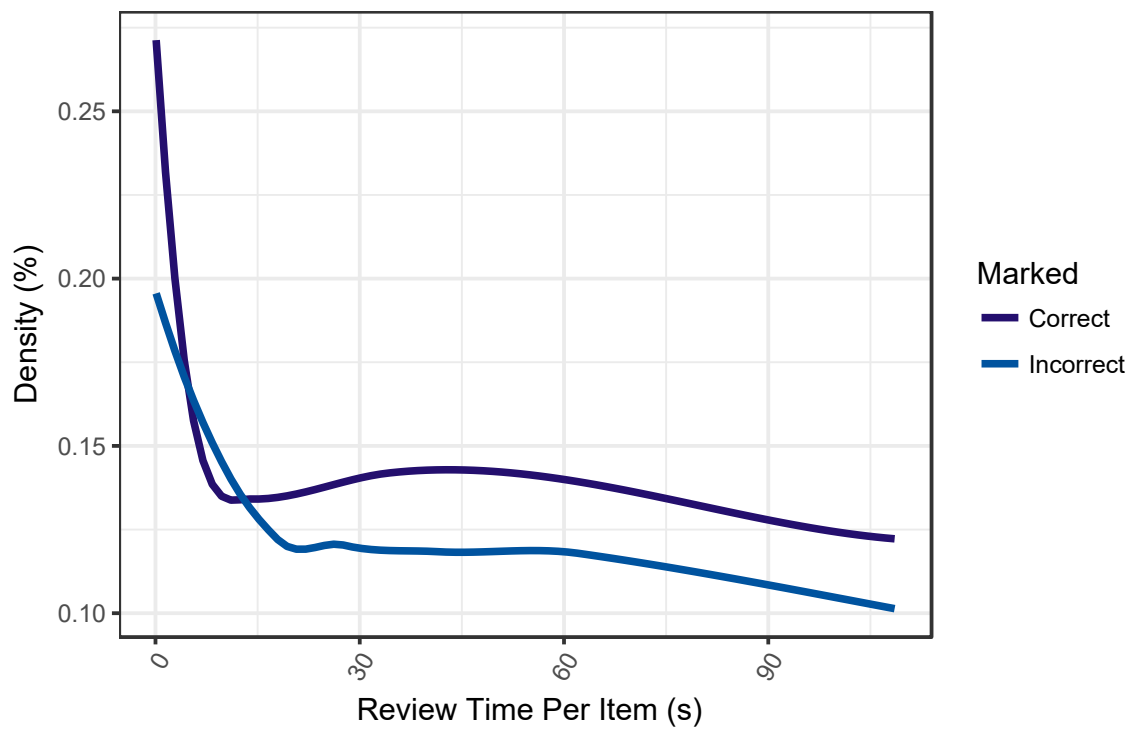
NCLEX Review Time Distribution  
for Items Marked as  
Correct vs Incorrect



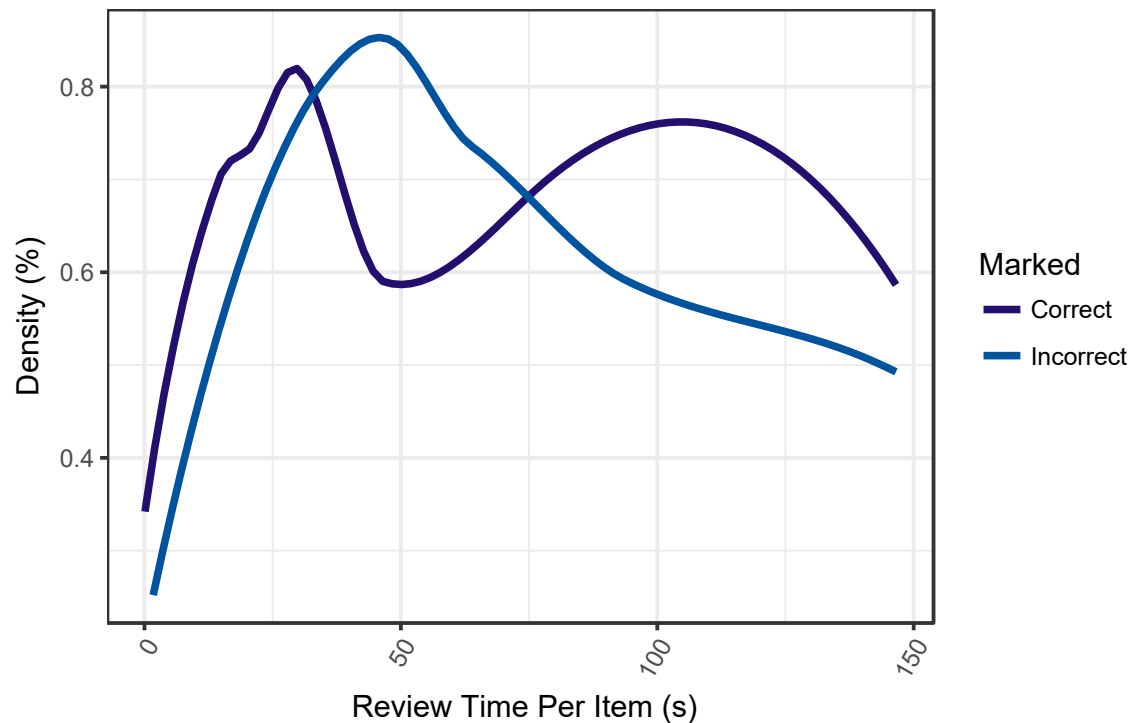
NRPE Review Time Distribution  
for Items Marked as  
Correct vs Incorrect



SAT Review Time Distribution  
for Items Marked as  
Correct vs Incorrect



### USMLS2CK Review Time Distribution for Items Marked as Correct vs Incorrect



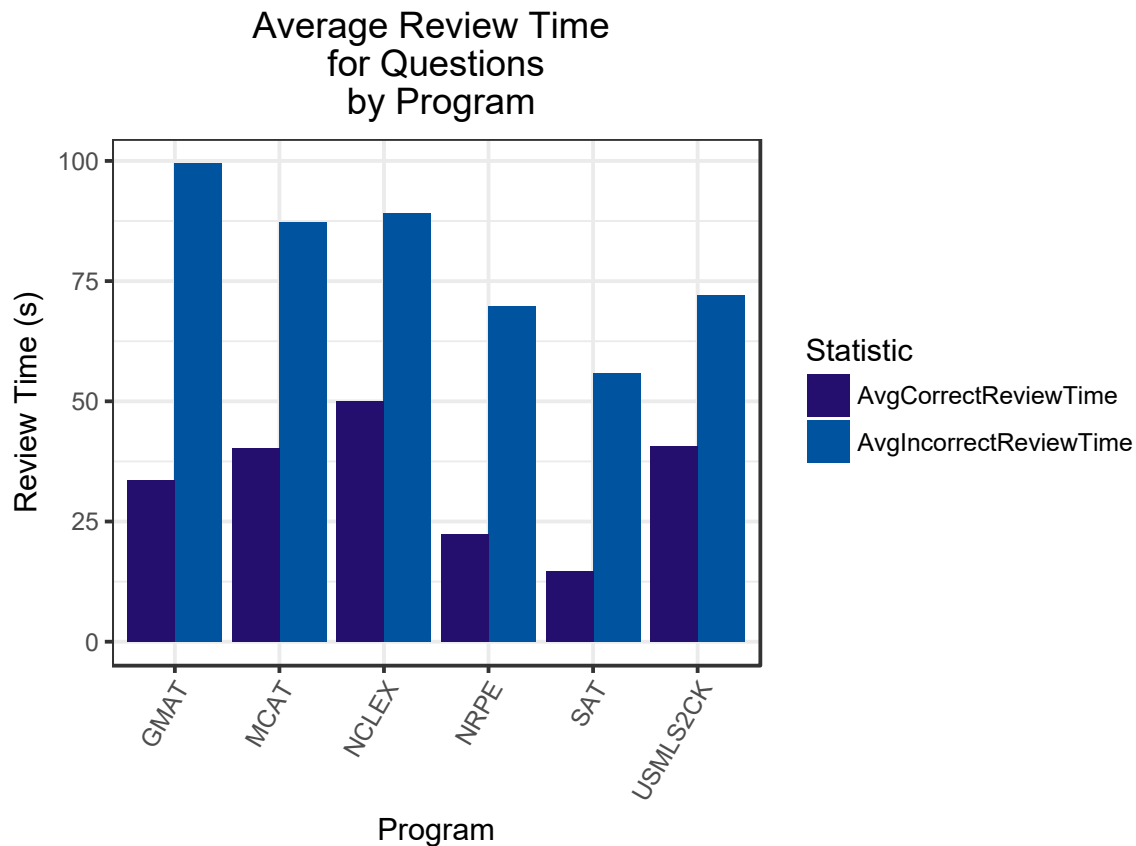
Below are two tables exploring the percentage of items reviewed by program. To see how enrollments who never review skew this result, the enrollments who never review have been removed in the second table. We finish this section by presenting a graph exploring the review time differences between items marked as correct and incorrect, by program.

**Review Proportion by Program**

Program	SampleSize	AvgCorrectReviewed_Percent	AvgIncorrectReviewed_Percent
GMAT	39325	67.96	92.28
MCAT	62347	87.1	90.57
NCLEX	81290	58.96	68.93
NRPE	641	81	88.42
SAT	1272	45.87	72.92
USMLS2CK	192	81.43	88.36
All Programs	185067	64.23	74.18

**Review Proportion by Program, Excluding Enrollments that Never Review**

Program	SampleSize	AvgCorrectReviewed_Percent	AvgIncorrectReviewed_Percent
GMAT	36247	72.8	95.99
MCAT	59144	90.32	95.15
NCLEX	69866	72.83	82.51
NRPE	594	86.42	94.05
SAT	1026	55.56	89.81
USMLS2CK	183	82.74	90.1
All Programs	167060	76.05	85.89



To ascertain the differences between the review times in the questions marked as correct versus the review times in the questions marked as incorrect, Two-sided t-tests have been run, to see whether the differences in review time between items marked as correct and incorrect, within each program, are statistically significant.

Program	t_value	p_value	Difference	Correct_Mean_Review_Time	Incorrect_Mean_Review_Time
GMAT	-25.84	0.00	-70.64	28.73	99.37
MCAT	-45.43	0.00	-47.70	39.08	86.78
NCLEX	-20.73	0.00	-48.35	49.69	98.04
NRPE	-7.71	0.00	-47.81	20.54	68.36
SAT	-4.92	0.00	-50.58	11.14	61.72
USMLS2CK	-5.37	0.00	-42.53	37.03	79.57
All Programs	-36.81	0.00	-50.02	45.72	95.73

All of the t-tests have indicated the sample review time, in seconds, for incorrect items is significantly different from the sample review time for correct items ( we use the standard p value of .05 for the cutoff of what we consider significantly different).

The difference column in the above table is how much the review time is lower on average for the questions marked as correct versus the questions marked as incorrect. So this data indicates that in general, the average student's time spent reviewing varies between whether they have gotten the item correct or incorrect, within program, significantly. The exact magnitude of the difference can be more accurate by using more data.

These conclusions seem plausible, Questions marked as correct will not take nearly as long to review as questions marked as incorrect - the students already know what they got correct, so reviewing those items will necessitate less time spent doing so.

To more easily look at the average time spent, in seconds, per each question subset, we have appended a table of the product codes with this information here.

product_code	SampleSize	AvgCorrectAnsweringTime	AvgCorrectReviewTime	AvgIncorrectAnsweringTime	AvgIncorrectReviewTime
1WKXMCAT	1	48.7	2.5	75.56	47.15
CENGMAT	30	90.91	8.543	98.94	48.46
CENMCAT	73	43.41	49.79	50.7	67.78
GMAT	3380	104.4	32.72	123	113.5
GMATAP	843	93.19	26.75	112.5	94.46
GMATAPCA	2026	106.9	32.33	125	100.8
GMATAPOD	1843	106.6	39.46	124.7	106
GMATCPT19	1013	96.09	29.88	122.5	94.55
GMATKCEP	1703	105.9	27.8	131.7	84.63
GMATLVO	4861	102.4	34.75	126.7	106.8
GMATOSE	1259	95.53	26.6	114.1	81.41
GMATPP3	3296	92.7	28.55	114.3	89.4
GMATPP6	1691	111.1	49.47	126.1	116
GMATPREOL	2483	100.5	35.87	122.7	105.5
GMATPRM18	10	109.8	7.973	137.4	34.87
GMATPRM19	4382	101.6	36.15	122.7	103.1
GMATQB6	895	94.24	25.81	140.3	93.44
GMATQDA	2872	91.45	32.67	117.8	69.53
GMATSP3	1739	107.7	31.32	117.6	107.5
GMATSP6	562	88.52	36.93	114.4	109
GMATTU	71	89.41	10.07	110.4	55.64
GMATTU25	32	80.98	34.52	111	99.56
GMATTU35	17	141.9	24.85	176.7	99.39
GMATVLT15	986	116	36.88	147	125.9
GMATVLT25	119	129.9	62.07	151.7	135.9
GMATVLT35	134	149.8	12.68	169.1	66.36
MCAT	12159	71.59	39.5	77.27	87.35
MCATBOX18	6	41.92	20.93	46.45	22.89
MCATBOX19	15	48.7	22.01	51.22	53.9
MCATBUND	236	80.42	47.8	65.12	141.5
MCATEX	3292	62.74	38.27	70.63	79.17
MCATEXOL	3980	65.5	33.33	70.01	69.45
MCATEXVL	4330	64.66	35.33	70.77	82.95
MCATFBCOD	1	50.4	2.175	97	0.2
MCATFLT	4	116.3	26.89	102.9	75.88
MCATKCEP	27	25.54	36.09	26.73	75.43
MCATMK	5	37.3	11.44	44.45	23.76
MCATOLX	8540	69.3	35.56	76.25	79.23
MCATPBQ	4	523.1	30.68	99.93	142.3
MCATQB	1075	67.91	68.78	70.89	120.3
MCATQB12	149	78.44	186	83.65	315.6
MCATQB3	248	77.8	26.91	74.62	53.2
MCATQBSUB	4247	61.81	43.51	67.64	90.62
MCATRT	6	29.04	53.71	66.56	63.33
MCATRTVL	343	77.85	33.42	80.12	84.44
MCATTU25X	102	87.09	22.15	109.3	45
MCATTU35X	178	85.28	50.66	94.67	135.6
MCATTUX	121	98.03	36.74	102.1	68.93
MCATVID	3	29.98	46.68	41.64	121.5
MCATVL	18439	70.64	42.11	77.25	91.75
MCTVLT15X	822	94.42	37.59	98.43	98.34
MCTVLT25X	543	71.8	27.83	83.62	67.16
MCTVLT35X	195	102.7	35.8	147.5	113
NCLEXVL	386	69.71	70.94	73.63	117.3
NCLXINST9	4115	59.45	101.9	73.4	140.5

product_code	SampleSize	AvgCorrectAnsweringTime	AvgCorrectReviewTime	AvgIncorrectAnsweringTime	AvgIncorrectReviewTime
NCLXITP1	12	28.14	31.56	22.12	104.1
NCLXQB	15	43.18	79.44	53.39	111.2
NCLXQBO	460	62.79	53.28	64.12	105.8
NCLXQOCAT	6400	50.11	42.38	60.67	76.22
NCLXRSQB	3894	49.87	61	64.85	103.7
NCLXRST	3367	48.22	49.73	56.3	95.24
NCQB6	12779	54.97	54.47	69.84	100.7
NRPEQB1	359	33.23	18.88	38.56	37.84
NRPEQB12	235	39.99	28.9	48.02	121.4
OLNCLG3	2070	42.21	37.05	52.28	57.82
OLNCLSYR	20038	40.83	40.86	50.57	77.63
RNDXCATIN	5941	40.7	51.8	49.42	90.58
RNPAKF	640	53.43	76.36	68.69	107.6
RNPLUSCAT	5	35.15	32.6	47.58	56.25
RNQB6CAT6	9744	49.3	47.03	63.36	89.01
SAT16	404	62.84	19.66	77.42	72.53
SAT16PL	57	54.15	13.5	78.46	49.69
SATCLVO16	268	60.18	11.16	75.81	50.61
SATCLVO6P	82	61.2	19.98	61.48	56.88
SATMK	1	16.4	0.1	18.53	1.633
SATPOP16	130	48.24	13.45	104.7	39.58
SATQB12	4	69.56	4.573	58.22	76.32
SATQB2	80	78.3	1.699	73.37	15.27
USMLCLNFT	183	52.27	40.63	67.87	72.05