

# 2011 Grade 4 Math Item Analysis Multiple Choice Questions

## MATH Question 1

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	55	.0	.0	.0
*	27	.0	.0	.0
2	9025	4.2	4.2	4.2
3	4430	2.0	2.0	6.2
4	3796	1.7	1.7	8.0
A	200067	92.0	92.0	100.0
Total	217400	100.0	100.0	

## MATH Question 2

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	90	.0	.0	.0
*	47	.0	.0	.1
1	17503	8.1	8.1	8.1
2	17567	8.1	8.1	16.2
4	17489	8.0	8.0	24.2
C	164704	75.8	75.8	100.0
Total	217400	100.0	100.0	

## MATH Question 3

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	83	.0	.0	.0
*	103	.0	.0	.1
1	2915	1.3	1.3	1.4
3	1688	.8	.8	2.2
4	3645	1.7	1.7	3.9
B	208966	96.1	96.1	100.0
Total	217400	100.0	100.0	

## MATH Question 4

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	98	.0	.0	.0
*	118	.1	.1	.1
1	3993	1.8	1.8	1.9
2	3947	1.8	1.8	3.8
3	8544	3.9	3.9	7.7
D	200700	92.3	92.3	100.0
Total	217400	100.0	100.0	

**MATH Question 5**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	207	.1	.1	.1
*	82	.0	.0	.1
1	9029	4.2	4.2	4.3
3	13312	6.1	6.1	10.4
4	19338	8.9	8.9	19.3
B	175432	80.7	80.7	100.0
Total	217400	100.0	100.0	

**MATH Question 6**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	137	.1	.1	.1
*	84	.0	.0	.1
1	12964	6.0	6.0	6.1
2	4489	2.1	2.1	8.1
3	34565	15.9	15.9	24.0
D	165161	76.0	76.0	100.0
Total	217400	100.0	100.0	

**MATH Question 7**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	292	.1	.1	.1
*	86	.0	.0	.2
1	21327	9.8	9.8	10.0
2	33863	15.6	15.6	25.6
3	16377	7.5	7.5	33.1
D	145455	66.9	66.9	100.0
Total	217400	100.0	100.0	

**MATH Question 8**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	106	.0	.0	.0
*	86	.0	.0	.1
2	2844	1.3	1.3	1.4
3	3016	1.4	1.4	2.8
4	2073	1.0	1.0	3.7
A	209275	96.3	96.3	100.0
Total	217400	100.0	100.0	

**MATH Question 9**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	185	.1	.1	.1
*	69	.0	.0	.1
1	29602	13.6	13.6	13.7
2	8416	3.9	3.9	17.6
4	4270	2.0	2.0	19.6
C	174858	80.4	80.4	100.0
Total	217400	100.0	100.0	

**MATH Question 10**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	227	.1	.1	.1
*	87	.0	.0	.1
2	11142	5.1	5.1	5.3
3	41700	19.2	19.2	24.5
4	6656	3.1	3.1	27.5
A	157588	72.5	72.5	100.0
Total	217400	100.0	100.0	

**MATH Question 11**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	205	.1	.1	.1
*	134	.1	.1	.2
2	18539	8.5	8.5	8.7
3	16627	7.6	7.6	16.3
4	19792	9.1	9.1	25.4
A	162103	74.6	74.6	100.0
Total	217400	100.0	100.0	

**MATH Question 12**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	149	.1	.1	.1
*	43	.0	.0	.1
1	7331	3.4	3.4	3.5
2	5098	2.3	2.3	5.8
4	2764	1.3	1.3	7.1
C	202015	92.9	92.9	100.0
Total	217400	100.0	100.0	

**MATH Question 13**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	123	.1	.1	.1
*	40	.0	.0	.1
1	11919	5.5	5.5	5.6
3	6164	2.8	2.8	8.4
4	7154	3.3	3.3	11.7
B	192000	88.3	88.3	100.0
Total	217400	100.0	100.0	

**MATH Question 14**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	137	.1	.1	.1
*	91	.0	.0	.1
1	8392	3.9	3.9	4.0
3	4391	2.0	2.0	6.0
4	55238	25.4	25.4	31.4
B	149151	68.6	68.6	100.0
Total	217400	100.0	100.0	

**MATH Question 15**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	217	.1	.1	.1
*	70	.0	.0	.1
1	25367	11.7	11.7	11.8
2	8527	3.9	3.9	15.7
3	25623	11.8	11.8	27.5
D	157596	72.5	72.5	100.0
Total	217400	100.0	100.0	

**MATH Question 16**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	296	.1	.1	.1
*	54	.0	.0	.2
1	11725	5.4	5.4	5.6
2	70559	32.5	32.5	38.0
4	20400	9.4	9.4	47.4
C	114366	52.6	52.6	100.0
Total	217400	100.0	100.0	

**MATH Question 17**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	125	.1	.1	.1
*	38	.0	.0	.1
1	8534	3.9	3.9	4.0
3	2318	1.1	1.1	5.1
4	932	.4	.4	5.5
B	205453	94.5	94.5	100.0
Total	217400	100.0	100.0	

**MATH Question 18**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	163	.1	.1	.1
*	104	.0	.0	.1
2	26739	12.3	12.3	12.4
3	28089	12.9	12.9	25.3
4	14098	6.5	6.5	31.8
A	148207	68.2	68.2	100.0
Total	217400	100.0	100.0	

**MATH Question 19**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	377	.2	.2	.2
*	70	.0	.0	.2
1	56163	25.8	25.8	26.0
2	70427	32.4	32.4	58.4
3	11107	5.1	5.1	63.5
D	79256	36.5	36.5	100.0
Total	217400	100.0	100.0	

**MATH Question 20**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	199	.1	.1	.1
*	107	.0	.0	.1
1	126830	58.3	58.3	58.5
3	4250	2.0	2.0	60.4
4	16444	7.6	7.6	68.0
B	69570	32.0	32.0	100.0
Total	217400	100.0	100.0	

**MATH Question 21**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	165	.1	.1	.1
*	59	.0	.0	.1
1	3174	1.5	1.5	1.6
2	6894	3.2	3.2	4.7
4	5981	2.8	2.8	7.5
C	201127	92.5	92.5	100.0
Total	217400	100.0	100.0	

**MATH Question 22**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	375	.2	.2	.2
*	128	.1	.1	.2
2	38884	17.9	17.9	18.1
3	29843	13.7	13.7	31.8
4	20481	9.4	9.4	41.3
A	127689	58.7	58.7	100.0
Total	217400	100.0	100.0	

**MATH Question 23**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	214	.1	.1	.1
*	211	.1	.1	.2
1	5064	2.3	2.3	2.5
2	1941	.9	.9	3.4
3	2119	1.0	1.0	4.4
D	207851	95.6	95.6	100.0
Total	217400	100.0	100.0	

**MATH Question 24**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	213	.1	.1	.1
*	69	.0	.0	.1
2	8614	4.0	4.0	4.1
3	6751	3.1	3.1	7.2
4	5901	2.7	2.7	9.9
A	195852	90.1	90.1	100.0
Total	217400	100.0	100.0	

**MATH Question 25**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	184	.1	.1	.1
*	57	.0	.0	.1
2	66158	30.4	30.4	30.5
3	14636	6.7	6.7	37.3
4	13129	6.0	6.0	43.3
A	123236	56.7	56.7	100.0
Total	217400	100.0	100.0	

**MATH Question 26**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	519	.2	.2	.2
*	98	.0	.0	.3
1	32255	14.8	14.8	15.1
2	29440	13.5	13.5	28.7
3	15233	7.0	7.0	35.7
D	139855	64.3	64.3	100.0
Total	217400	100.0	100.0	

**MATH Question 27**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	252	.1	.1	.1
*	84	.0	.0	.2
1	31814	14.6	14.6	14.8
3	12162	5.6	5.6	20.4
4	12948	6.0	6.0	26.3
B	160140	73.7	73.7	100.0
Total	217400	100.0	100.0	

**MATH Question 28**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	215	.1	.1	.1
*	48	.0	.0	.1
1	8015	3.7	3.7	3.8
2	3597	1.7	1.7	5.5
4	9434	4.3	4.3	9.8
C	196091	90.2	90.2	100.0
Total	217400	100.0	100.0	

**MATH Question 29**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	272	.1	.1	.1
*	73	.0	.0	.2
1	11911	5.5	5.5	5.6
3	24009	11.0	11.0	16.7
4	94603	43.5	43.5	60.2
B	86532	39.8	39.8	100.0
Total	217400	100.0	100.0	

**MATH Question 30**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	271	.1	.1	.1
*	69	.0	.0	.2
2	23106	10.6	10.6	10.8
3	30366	14.0	14.0	24.8
4	13317	6.1	6.1	30.9
A	150271	69.1	69.1	100.0
Total	217400	100.0	100.0	

**MATH Question 31**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	243	.1	.1	.1
*	58	.0	.0	.1
1	51364	23.6	23.6	23.8
3	5817	2.7	2.7	26.4
4	5450	2.5	2.5	28.9
B	154468	71.1	71.1	100.0
Total	217400	100.0	100.0	

**MATH Question 32**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	318	.1	.1	.1
*	106	.0	.0	.2
1	39175	18.0	18.0	18.2
3	14783	6.8	6.8	25.0
4	27510	12.7	12.7	37.7
B	135508	62.3	62.3	100.0
Total	217400	100.0	100.0	



**MATH Question 33**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	301	.1	.1	.1
*	133	.1	.1	.2
2	10210	4.7	4.7	4.9
3	16581	7.6	7.6	12.5
4	47612	21.9	21.9	34.4
A	142563	65.6	65.6	100.0
Total	217400	100.0	100.0	

**MATH Question 34**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	353	.2	.2	.2
*	141	.1	.1	.2
1	11830	5.4	5.4	5.7
3	22181	10.2	10.2	15.9
4	54112	24.9	24.9	40.8
B	128783	59.2	59.2	100.0
Total	217400	100.0	100.0	

**MATH Question 35**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	526	.2	.2	.2
*	97	.0	.0	.3
1	28388	13.1	13.1	13.3
2	47792	22.0	22.0	35.3
4	23919	11.0	11.0	46.3
C	116678	53.7	53.7	100.0
Total	217400	100.0	100.0	

**MATH Question 36**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	530	.2	.2	.2
*	72	.0	.0	.3
2	27866	12.8	12.8	13.1
3	24072	11.1	11.1	24.2
4	22778	10.5	10.5	34.6
A	142082	65.4	65.4	100.0
Total	217400	100.0	100.0	

**MATH Question 37**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	514	.2	.2	.2
*	55	.0	.0	.3
2	21660	10.0	10.0	10.2
3	22259	10.2	10.2	20.5
4	23305	10.7	10.7	31.2
A	149607	68.8	68.8	100.0
Total	217400	100.0	100.0	

**MATH Question 38**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	430	.2	.2	.2
*	95	.0	.0	.2
1	9306	4.3	4.3	4.5
3	8942	4.1	4.1	8.6
4	6666	3.1	3.1	11.7
B	191961	88.3	88.3	100.0
Total	217400	100.0	100.0	

**MATH Question 39**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	518	.2	.2	.2
*	174	.1	.1	.3
1	9150	4.2	4.2	4.5
2	8086	3.7	3.7	8.2
4	150821	69.4	69.4	77.6
C	48651	22.4	22.4	100.0
Total	217400	100.0	100.0	

**MATH Question 40**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	579	.3	.3	.3
*	92	.0	.0	.3
1	33868	15.6	15.6	15.9
3	29402	13.5	13.5	29.4
4	24070	11.1	11.1	40.5
B	129389	59.5	59.5	100.0
Total	217400	100.0	100.0	

**MATH Question 41**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	646	.3	.3	.3
*	171	.1	.1	.4
1	9284	4.3	4.3	4.6
2	21150	9.7	9.7	14.4
3	22800	10.5	10.5	24.9
D	163349	75.1	75.1	100.0
Total	217400	100.0	100.0	

**MATH Question 42**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	685	.3	.3	.3
*	93	.0	.0	.4
1	32672	15.0	15.0	15.4
3	26631	12.2	12.2	27.6
4	25032	11.5	11.5	39.2
B	132287	60.8	60.8	100.0
Total	217400	100.0	100.0	

**MATH Question 43**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	721	.3	.3	.3
*	82	.0	.0	.4
1	50580	23.3	23.3	23.6
2	45195	20.8	20.8	44.4
4	12302	5.7	5.7	50.1
C	108520	49.9	49.9	100.0
Total	217400	100.0	100.0	

**MATH Question 44**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1218	.6	.6	.6
*	63	.0	.0	.6
1	49455	22.7	22.7	23.3
3	21241	9.8	9.8	33.1
4	10753	4.9	4.9	38.1
B	134670	61.9	61.9	100.0
Total	217400	100.0	100.0	

**MATH Question 45**

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1356	.6	.6	.6
*	48	.0	.0	.6
1	24393	11.2	11.2	11.9
2	20797	9.6	9.6	21.4
4	31232	14.4	14.4	35.8
C	139574	64.2	64.2	100.0
Total	217400	100.0	100.0	

**2011 Grade 4 Math Constructed Response Items**

**Descriptive Statistics**

	N	Mean	Std. Deviation
MATH Question 46	217186	1.59	.692
MATH Question 47	217116	1.39	.800
MATH Question 48	217210	1.69	.536
MATH Question 49	216846	1.41	.838
MATH Question 50	216805	1.30	.662
MATH Question 51	216467	.94	.844
MATH Question 52	216802	1.45	.831
MATH Question 53	216879	1.22	.823
MATH Question 54	216458	.99	1.011
MATH Question 55	216733	2.29	1.000
MATH Question 56	216200	2.15	.971
MATH Question 57	215625	2.28	.839
Valid N (listwise)	213139		

**2011 Grade 4 Math SPIs**

**Descriptive Statistics**

	N	Mean		Std.
	Statistic	Statistic	Std. Error	Statistic
MATH Standard 1 Performance Index	217396	67.96	.046	21.529
MATH Standard 2 Performance Index	217396	76.27	.038	17.851
MATH Standard 3 Performance Index	217396	78.22	.036	16.908
MATH Standard 4 Performance Index	217396	65.61	.048	22.230
MATH Standard 5 Performance Index	217396	59.44	.040	18.604
Valid N (listwise)	217396			