

## **4. THE 2009 MSA-MATH STATISTICAL SUMMARY**

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This chapter summarizes statistical results of the 2009 MSA-Math. It includes descriptive statistics of the 2009 math test based on raw scores and scale scores, accuracy and consistency of the 2009 math test, rater agreement rates, correlation coefficients among reporting standards, and total and substrand RS/SS conversion tables.

**Table 4.1 The 2009 MSA-Math Classical Descriptive Statistics: Grades 3 through 8**

Grade	Form	No. of Items	<i>N</i>	<i>M</i>	<i>SD</i>	Reliability	<i>SEM</i>
3	A	65	30,174	54.88	11.28	0.93	2.98
	F	65	29,789	53.97	11.18	0.93	2.96
4	A	64	29,532	49.36	12.56	0.94	3.08
	F	64	29,476	48.46	12.48	0.94	3.06
5	A	65	30,344	49.71	14.27	0.94	3.50
	F	65	30,103	49.78	13.52	0.94	3.31
6	A	62	29,789	45.03	13.96	0.94	3.42
	F	62	29,240	44.79	14.15	0.94	3.47
7	A	62	30,318	40.12	15.94	0.95	3.56
	F	62	29,596	39.79	15.54	0.95	3.47
8	A	61	30,760	36.09	16.17	0.95	3.62
	F	60	30,282	35.98	14.94	0.94	3.66

*Note.* Analysis was conducted with a statewide population.

*Note.* 62 items were originally developed for each operational form in grade 8. However, due to item development issues that affected two BCR items (i.e., scatter plot) on operational Form F caused MSDE and NPC to Do Not Score (DNS) the items. One probability SR item on operational Form A was deemed DNS.

**Table 4.2 The 2009 MSA-Math Scale Score Descriptive Statistics: Grades 3 through 8**

Grade	Form	N	M	SD	P10	Q1	Mdn	Q3	P90	IQR	SE at Cut-Points	
											Prof.	Adv.
3	A	30,174	419.1	43.4	367	391	418	446	474	55	9	14
	F	29,789	419.6	41.8	366	393	418	445	472	52	9	13
	Overall	59,963	419.4	42.6	366	391	418	446	472	55	N/A	N/A
4	A	29,532	425.9	43.7	370	394	426	454	485	60	9	11
	F	29,476	426.5	43.0	371	396	427	454	483	58	9	11
	Overall	59,008	426.2	43.3	371	396	426	454	483	58	N/A	N/A
5	A	30,344	425.5	39.1	376	399	425	450	476	51	8	10
	F	30,103	427.9	38.7	380	400	426	455	480	55	8	10
	Overall	60,447	426.7	38.9	377	400	425	454	476	54	N/A	N/A
6	A	29,789	426.2	38.6	377	397	423	453	479	56	8	9
	F	29,240	425.3	37.4	379	398	423	452	476	54	8	10
	Overall	59,029	425.7	38.0	379	398	423	452	476	54	N/A	N/A
7	A	30,318	420.5	38.5	371	391	420	449	471	58	8	9
	F	29,596	421.9	38.8	372	393	419	450	473	57	8	9
	Overall	59,914	421.2	38.7	371	393	420	449	473	56	N/A	N/A
8	A	30,760	424.5	36.5	379	398	422	449	473	51	8	8
	F	30,282	425.2	35.6	381	400	424	449	474	49	8	8
	Overall	61,042	424.8	36.0	381	398	422	449	474	51	N/A	N/A

Note. Analysis was conducted with a statewide population.

**Table 4.3 The 2009 MSA-Math Standard Correlations: Grade 3**

Form	N	Mean	SD	1	2	3	4	5
<b>Form A</b>								
1. Algebra	30,174	11.03	2.10	1.00				
2. Geometry and Measurement	30,174	11.65	2.56	0.65	1.00			
3. Statistics and Probability	30,174	11.56	2.46	0.72	0.69	1.00		
4. Numbers and Computation	30,174	12.54	3.04	0.73	0.72	0.76	1.00	
5. Process	30,174	8.10	2.82	0.62	0.66	0.65	0.70	1.00
<b>Form F</b>								
1. Algebra	29,789	10.98	1.97	1.00				
2. Geometry and Measurement	29,789	11.72	2.62	0.66	1.00			
3. Statistics and Probability	29,789	11.08	2.56	0.70	0.70	1.00		
4. Numbers and Computation	29,789	12.21	3.29	0.71	0.72	0.76	1.00	
5. Process	29,789	7.97	2.49	0.57	0.65	0.64	0.66	1.00

Note. Analysis was conducted with a statewide population.

**Table 4.4 The 2009 MSA-Math Standard Correlations: Grade 4**

Form	N	Mean	SD	1	2	3	4	5
<b>Form A</b>								
1. Algebra	29,532	10.88	2.65	1.00				
2. Geometry and Measurement	29,532	9.73	2.80	0.67	1.00			
3. Statistics and Probability	29,532	11.17	3.39	0.73	0.71	1.00		
4. Numbers and Computation	29,532	10.77	2.73	0.72	0.69	0.74	1.00	
5. Process	29,532	6.82	2.73	0.70	0.71	0.73	0.69	1.00
<b>Form F</b>								
1. Algebra	29,476	11.43	2.52	1.00				
2. Geometry and Measurement	29,476	9.26	2.76	0.67	1.00			
3. Statistics and Probability	29,476	11.04	3.38	0.72	0.71	1.00		
4. Numbers and Computation	29,476	10.22	2.96	0.72	0.70	0.73	1.00	
5. Process	29,476	6.51	2.66	0.70	0.69	0.71	0.68	1.00

Note. Analysis was conducted with a statewide population.

**Table 4.5 The 2009 MSA-Math Standard Correlations: Grade 5**

Form	N	Mean	SD	1	2	3	4	5
<b>Form A</b>								
1. Algebra	30,344	11.38	2.97	1.00				
2. Geometry and Measurement	30,344	9.27	3.04	0.73	1.00			
3. Statistics and Probability	30,344	9.38	2.57	0.71	0.70	1.00		
4. Numbers and Computation	30,344	10.15	3.36	0.74	0.74	0.69	1.00	
5. Process	30,344	9.52	4.08	0.79	0.75	0.72	0.79	1.00
<b>Form F</b>								
1. Algebra	30,103	11.42	2.62	1.00				
2. Geometry and Measurement	30,103	9.24	2.88	0.69	1.00			
3. Statistics and Probability	30,103	10.39	2.52	0.71	0.67	1.00		
4. Numbers and Computation	30,103	9.76	3.39	0.73	0.73	0.69	1.00	
5. Process	30,103	8.98	3.90	0.72	0.75	0.69	0.78	1.00

Note. Analysis was conducted with a statewide population.

**Table 4.6 The 2009 MSA-Math Standard Correlations: Grade 6**

Form	N	Mean	SD	1	2	3	4	5
<b>Form A</b>								
1. Algebra	29,789	10.41	2.84	1.00				
2. Geometry and Measurement	29,789	8.66	3.36	0.73	1.00			
3. Statistics and Probability	29,789	8.69	2.6	0.71	0.70	1.00		
4. Numbers and Computation	29,789	8.86	3.49	0.77	0.76	0.73	1.00	
5. Process	29,789	8.40	3.35	0.76	0.76	0.72	0.79	1.00
<b>Form F</b>								
1. Algebra	29,240	9.3	3.25	1.00				
2. Geometry and Measurement	29,240	8.99	3.38	0.75	1.00			
3. Statistics and Probability	29,240	10.09	2.39	0.68	0.67	1.00		
4. Numbers and Computation	29,240	8.70	3.34	0.76	0.73	0.64	1.00	
5. Process	29,240	7.71	3.59	0.78	0.78	0.68	0.77	1.00

Note. Analysis was conducted with a statewide population.

**Table 4.7 The 2009 MSA-Math Standard Correlations: Grade 7**

Form	N	Mean	SD	1	2	3	4	5
<b>Form A</b>								
1. Algebra	30,318	7.95	3.53	1.00				
2. Geometry and Measurement	30,318	6.28	3.49	0.76	1.00			
3. Statistics and Probability	30,318	8.91	3.55	0.76	0.73	1.00		
4. Numbers and Computation	30,318	8.17	3.39	0.80	0.76	0.74	1.00	
5. Process	30,318	8.81	3.76	0.78	0.77	0.80	0.73	1.00
<b>Form F</b>								
1. Algebra	29,596	7.66	3.52	1.00				
2. Geometry and Measurement	29,596	6.75	3.47	0.77	1.00			
3. Statistics and Probability	29,596	8.71	3.53	0.77	0.74	1.00		
4. Numbers and Computation	29,596	8.27	3.46	0.81	0.77	0.75	1.00	
5. Process	29,596	8.4	3.27	0.76	0.75	0.79	0.72	1.00

Note. Analysis was conducted with a statewide population.

**Table 4.8 The 2009 MSA-Math Standard Correlations: Grade 8**

Form	N	Mean	SD	1	2	3	4	5
<b>Form A</b>								
1. Algebra	30,760	8.02	3.71	1.00				
2. Geometry and Measurement	30,760	6.32	3.21	0.75	1.00			
3. Statistics and Probability	30,760	7.19	3.32	0.77	0.73	1.00		
4. Numbers and Computation	30,760	5.99	2.99	0.78	0.75	0.76	1.00	
5. Process	30,760	8.57	4.66	0.81	0.79	0.78	0.74	1.00
<b>Form F</b>								
1. Algebra	30,282	7.31	3.86	1.00				
2. Geometry and Measurement	30,282	6.26	3.06	0.74	1.00			
3. Statistics and Probability	30,282	7.34	3.04	0.72	0.69	1.00		
4. Numbers and Computation	30,282	6.83	2.98	0.77	0.73	0.72	1.00	
5. Process	30,282	8.23	3.82	0.79	0.76	0.75	0.73	1.00

Note. Analysis was conducted with a statewide population.

**Table 4.9 The 2009 MSA-Math Decision Accuracy and Consistency Indices: Grade 3**

Form	Performance Cut	Accuracy	False Positive	False Negative	Consistency
A	<i>B : PA</i>	0.94	0.02	0.03	0.92
	<i>BP : A</i>	0.93	0.04	0.03	0.90
F	<i>B : PA</i>	0.94	0.02	0.03	0.92
	<i>BP : A</i>	0.93	0.04	0.03	0.90

*Note.* B: PA denotes the cut between Basic and Proficient, while BP:A denotes the cut between Proficient and Advanced.

**Table 4.10 The 2009 MSA- Mathematics Decision Accuracy and Consistency Indices: Grade 4**

Form	Performance Cut	Accuracy	False Positive	False Negative	Consistency
A	<i>B : PA</i>	0.96	0.02	0.02	0.94
	<i>BP : A</i>	0.92	0.04	0.03	0.89
F	<i>B : PA</i>	0.96	0.02	0.02	0.94
	<i>BP : A</i>	0.92	0.04	0.04	0.89

*Note.* B: PA denotes the cut between Basic and Proficient, while BP:A denotes the cut between Proficient and Advanced.

**Table 4.11 The 2009 MSA- Mathematics Decision Accuracy and Consistency Indices: Grade 5**

Form	Performance Cut	Accuracy	False Positive	False Negative	Consistency
A	<i>B : PA</i>	0.94	0.03	0.03	0.92
	<i>BP : A</i>	0.94	0.03	0.02	0.92
F	<i>B : PA</i>	0.94	0.03	0.03	0.91
	<i>BP : A</i>	0.94	0.03	0.03	0.92

*Note.* B: PA denotes the cut between Basic and Proficient, while BP:A denotes the cut between Proficient and Advanced.

**Table 4.12 The 2009 MSA- Mathematics Decision Accuracy and Consistency Indices: Grade 6**

Form	Performance Cut	Accuracy	False Positive	False Negative	Consistency
A	<i>B : PA</i>	0.93	0.03	0.04	0.91
	<i>BP : A</i>	0.94	0.03	0.03	0.92
F	<i>B : PA</i>	0.93	0.03	0.04	0.91
	<i>BP : A</i>	0.94	0.03	0.03	0.92

*Note.* B: PA denotes the cut between Basic and Proficient, while BP:A denotes the cut between Proficient and Advanced.

**Table 4.13 The 2009 MSA- Mathematics Decision Accuracy and Consistency Indices: Grade 7**

Form	Performance Cut	Accuracy	False Positive	False Negative	Consistency
A	<i>B : PA</i>	0.94	0.03	0.03	0.92
	<i>BP : A</i>	0.95	0.03	0.02	0.93
F	<i>B : PA</i>	0.94	0.03	0.03	0.92
	<i>BP : A</i>	0.95	0.03	0.02	0.93

*Note.* B: PA denotes the cut between Basic and Proficient, while BP:A denotes the cut between Proficient and Advanced.

**Table 4.14 The 2009 MSA- Mathematics Decision Accuracy and Consistency Indices: Grade 8**

Form	Performance Cut	Accuracy	False Positive	False Negative	Consistency
A	<i>B : PA</i>	0.93	0.03	0.04	0.91
	<i>BP : A</i>	0.94	0.03	0.03	0.92
F	<i>B : PA</i>	0.93	0.04	0.03	0.90
	<i>BP : A</i>	0.94	0.03	0.03	0.92

*Note.* B: PA denotes the cut between Basic and Proficient, while BP:A denotes the cut between Proficient and Advanced.



**Table 4.15 The 2009 MSA-Math Score Difference between Rater 1 and Rater 2: Grade 3**

Form	Score Range	Item CID	Perfect		Adjacent		Discrepancy		Total	
			N	%	N	%	N	%	N	%
A	0-1	100000011184	29,835	98.88	339	1.12			30,174	100.00
	0-2	3595527	25,482	84.45	4,670	15.48	22	0.07	30,174	100.00
	0-1	3509941	29,844	98.91	330	1.09			30,174	100.00
	0-2	3595501	25,830	85.60	4,301	14.25	43	0.14	30,174	100.00
	0-1	100000025196	30,095	99.74	79	0.26			30,174	100.00
	0-2	3595519	23,994	79.52	6,119	20.28	61	0.20	30,174	100.00
	0-1	3488139	29,936	99.21	238	0.79			30,174	100.00
	0-2	3564095	23,282	77.16	6,834	22.65	58	0.19	30,174	100.00
	0-1	3510072	30,064	99.64	110	0.36			30,174	100.00
	0-2	3564080	23,822	78.95	6,162	20.42	190	0.63	30,174	100.00
	0-1	3509949	29,026	96.20	1,148	3.80			30,174	100.00
	0-2	3985609	26,349	87.32	3,732	12.37	93	0.31	30,174	100.00
	0-1	3547998	29,936	99.21	238	0.79			30,174	100.00
	0-2	3564094	27,227	90.23	2,911	9.65	36	0.12	30,174	100.00
F	0-1	100000011186	29,542	99.17	247	0.83			29,789	100.00
	0-2	3595529	26,199	87.95	3,572	11.99	18	0.06	29,789	100.00
	0-1	3509941	29,395	98.68	394	1.32			29,789	100.00
	0-2	3595501	25,587	85.89	4,167	13.99	35	0.12	29,789	100.00
	0-1	100000025196	29,692	99.67	97	0.33			29,789	100.00
	0-2	3595519	23,840	80.03	5,898	19.8	51	0.17	29,789	100.00
	0-1	3510067	29,614	99.41	175	0.59			29,789	100.00
	0-2	3564083	24,560	82.45	5,052	16.96	177	0.59	29,789	100.00
	0-1	3488087	29,437	98.82	352	1.18			29,789	100.00
	0-2	3564099	23,475	78.80	6,292	21.12	22	0.07	29,789	100.00
	0-1	3509978	29,204	98.04	585	1.96			29,789	100.00
	0-2	3985610	26,096	87.60	3,684	12.37	9	0.03	29,789	100.00
	0-1	3509932	29,634	99.48	155	0.52			29,789	100.00
	0-2	3564086	25,976	87.20	3,790	12.72	23	0.08	29,789	100.00

Note. Analysis was conducted with a statewide population.

**Table 4.16 The 2009 MSA-Mathematics Score Difference between Rater 1 and Rater 2: Grade 4**

Form	Score Range	Item CID	Perfect		Adjacent		Discrepancy		Total	
			N	%	N	%	N	%	N	%
A	0-1	3487819	28,967	98.09	565	1.91			29,532	100.00
	0-2	3564186	24,403	82.63	5,102	17.28	27	0.09	29,532	100.00
	0-1	100000044142	29,302	99.22	230	0.78			29,532	100.00
	0-2	3595499	27,041	91.57	2,457	8.32	34	0.12	29,532	100.00
	0-1	100000025172	29,365	99.43	167	0.57			29,532	100.00
	0-2	3985613	23,153	78.40	6,324	21.41	55	0.19	29,532	100.00
	0-1	3515823	29,184	98.82	348	1.18			29,532	100.00
	0-2	3595532	25,158	85.19	4,363	14.77	11	0.04	29,532	100.00
	0-1	3488150	29,342	99.36	190	0.64			29,532	100.00
	0-2	3564176	25,256	85.52	4,239	14.35	37	0.13	29,532	100.00
	0-1	3488145	29,110	98.57	422	1.43			29,532	100.00
	0-2	3564189	24,210	81.98	5,313	17.99	9	0.03	29,532	100.00
	0-1	3515783	28,933	97.97	599	2.03			29,532	100.00
0-2	3595560	23,643	80.06	5,621	19.03	268	0.91	29,532	100.00	
F	0-1	3487819	28,912	98.09	564	1.91			29,476	100.00
	0-2	3564186	24,512	83.16	4,937	16.75	27	0.09	29,476	100.00
	0-1	100000044142	29,228	99.16	248	0.84			29,476	100.00
	0-2	3595499	26,965	91.48	2,488	8.44	23	0.08	29,476	100.00
	0-1	3515642	29,150	98.89	326	1.11			29,476	100.00
	0-2	3985619	23,600	80.07	5,733	19.45	143	0.49	29,476	100.00
	0-1	100000201938	29,211	99.10	265	0.9			29,476	100.00
	0-2	3985620	26,003	88.22	3,467	11.76	6	0.02	29,476	100.00
	0-1	3515807	29,016	98.44	460	1.56			29,476	100.00
	0-2	3564165	23,881	81.02	5,564	18.88	31	0.11	29,476	100.00
	0-1	3488145	29,003	98.40	473	1.60			29,476	100.00
	0-2	3564189	24,313	82.48	5,151	17.48	12	0.04	29,476	100.00
	0-1	100000201940	29,149	98.89	327	1.11			29,476	100.00
0-2	3985623	25,499	86.51	3,819	12.96	158	0.54	29,476	100.00	

Note. Analysis was conducted with a statewide population.

**Table 4.17 The 2009 MSA-Mathematics Score Difference between Rater 1 and Rater 2: Grade 5**

Form	Score Range	Item CID	Perfect		Adjacent		Discrepancy		Total	
			N	%	N	%	N	%	N	%
A	0-1	3488471	30,033	98.98	311	1.02			30,344	100.00
	0-2	3564052	23,563	77.65	6,697	22.07	84	0.28	30,344	100.00
	0-1	3488461	30,060	99.06	284	0.94			30,344	100.00
	0-2	3564055	24,085	79.37	5,980	19.71	279	0.92	30,344	100.00
	0-1	3488522	30,166	99.41	178	0.59			30,344	100.00
	0-2	3564059	24,878	81.99	5,426	17.88	40	0.13	30,344	100.00
	<b>0-1</b>	<b>3548429</b>	<b>30,003</b>	<b>98.88</b>	<b>341</b>	<b>1.12</b>			<b>30,344</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564047</b>	<b>22,550</b>	<b>74.31</b>	<b>7,561</b>	<b>24.92</b>	<b>233</b>	<b>0.77</b>	<b>30,344</b>	<b>100.00</b>
	0-1	3488347	29,939	98.67	405	1.33			30,344	100.00
	0-2	3564046	28,203	92.94	2,021	6.66	120	0.4	30,344	100.00
	0-1	3488277	29,392	96.86	952	3.14			30,344	100.00
	0-2	3564193	25,769	84.92	4,497	14.82	78	0.26	30,344	100.00
	0-1	3488406	28,992	95.54	1,352	4.46			30,344	100.00
	0-2	3563998	27,384	90.25	2,857	9.42	103	0.34	30,344	100.00
	0-1	3488348	30,038	98.99	306	1.01			30,344	100.00
	0-2	3464056	23,061	76.00	7,202	23.73	81	0.27	30,344	100.00
F	0-1	3511531	29,693	98.64	410	1.36			30,103	100.00
	0-2	3563986	25,496	84.7	4,588	15.24	19	0.06	30,103	100.00
	0-1	3488461	29,832	99.10	271	0.90			30,103	100.00
	0-2	3564055	23,824	79.14	6,032	20.04	247	0.82	30,103	100.00
	0-1	3512615	29,700	98.66	403	1.34			30,103	100.00
	0-2	3595439	24,115	80.11	5,959	19.8	29	0.10	30,103	100.00
	<b>0-1</b>	<b>3488525</b>	<b>29,881</b>	<b>99.26</b>	<b>222</b>	<b>0.74</b>			<b>30,103</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564053</b>	<b>24,793</b>	<b>82.36</b>	<b>5,089</b>	<b>16.91</b>	<b>221</b>	<b>0.73</b>	<b>30,103</b>	<b>100.00</b>
	0-1	3488347	29,748	98.82	355	1.18			30,103	100.00
	0-2	3564046	27,877	92.61	2,093	6.95	133	0.44	30,103	100.00
	0-1	3548459	29,808	99.02	295	0.98			30,103	100.00
	0-2	3564051	27,377	90.94	2,678	8.90	48	0.16	30,103	100.00
	0-1	3512649	29,931	99.43	172	0.57			30,103	100.00
	0-2	3563989	26,169	86.93	3,606	11.98	328	1.09	30,103	100.00
	0-1	3488259	29,829	99.09	274	0.91			30,103	100.00
	0-2	3564048	26,263	87.24	3,413	11.34	427	1.42	30,103	100.00

Note. Analysis was conducted with a statewide population.

Note. Bold-faced item indicates an ECR item.

**Table 4.18 The 2009 MSA-Mathematics Score Difference between Rater 1 and Rater 2: Grade 6**

Form	Score Range	Item CID	Perfect		Adjacent		Discrepancy		Total	
			N	%	N	%	N	%	N	%
A	<b>0-1</b>	<b>3517004</b>	<b>29,552</b>	<b>99.20</b>	<b>237</b>	<b>0.80</b>			<b>29,789</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564010</b>	<b>19,709</b>	<b>66.16</b>	<b>9,447</b>	<b>31.71</b>	<b>633</b>	<b>2.12</b>	<b>29,789</b>	<b>100.00</b>
	0-1	3548404	29,488	98.99	301	1.01			29,789	100.00
	0-2	3564013	25,833	86.72	3,941	13.23	15	0.05	29,789	100.00
	0-1	3488462	29,503	99.04	286	0.96			29,789	100.00
	0-2	3564075	25,715	86.32	3,978	13.35	96	0.32	29,789	100.00
	0-1	3516333	28,442	95.48	1,347	4.52			29,789	100.00
	0-2	3564008	22,556	75.72	6,541	21.96	692	2.32	29,789	100.00
	0-1	100000208909	29,426	98.78	363	1.22			29,789	100.00
	0-2	3985730	24,065	80.78	5,492	18.44	232	0.78	29,789	100.00
	0-1	3516616	29,315	98.41	474	1.59			29,789	100.00
	0-2	3564012	26,709	89.66	2,856	9.59	224	0.75	29,789	100.00
	0-1	3488411	29,371	98.60	418	1.40			29,789	100.00
	0-2	3564014	24,036	80.69	5,626	18.89	127	0.43	29,789	100.00
F	<b>0-1</b>	<b>3548350</b>	<b>28,059</b>	<b>95.96</b>	<b>1,181</b>	<b>4.04</b>			<b>29,240</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564015</b>	<b>23,900</b>	<b>81.74</b>	<b>5,047</b>	<b>17.26</b>	<b>293</b>	<b>1.00</b>	<b>29,240</b>	<b>100.00</b>
	0-1	3516627	28,494	97.45	746	2.55			29,240	100.00
	0-2	3564006	23,898	81.73	5,273	18.03	69	0.24	29,240	100.00
	0-1	3488469	29,041	99.32	199	0.68			29,240	100.00
	0-2	3564071	27,748	94.90	1,407	4.81	85	0.29	29,240	100.00
	0-1	3516358	27,327	93.46	1,913	6.54			29,240	100.00
	0-2	3985729	23,209	79.37	5,950	20.35	81	0.28	29,240	100.00
	0-1	100000208909	28,838	98.63	402	1.37			29,240	100.00
	0-2	3985730	23,602	80.72	5,375	18.38	263	0.90	29,240	100.00
	0-1	3516616	28,767	98.38	473	1.62			29,240	100.00
	0-2	3564012	26,192	89.58	2,831	9.68	217	0.74	29,240	100.00
	0-1	3516913	28,946	98.99	294	1.01			29,240	100.00
	0-2	3985725	24,648	84.30	4,571	15.63	21	0.07	29,240	100.00

Note. Analysis was conducted with a statewide population.

Note. Bold-faced item indicates an ECR item.

**Table 4.19 The 2007 MSA-Mathematics Score Difference between Rater 1 and Rater 2: Grade 7**

Form	Score Range	Item CID	Perfect		Adjacent		Discrepancy		Total	
			N	%	N	%	N	%	N	%
A	0-1	3517744	30,099	99.28	219	0.72			30,318	100.00
	0-2	3564018	24,817	81.86	5,388	17.77	113	0.37	30,318	100.00
	<b>0-1</b>	<b>3491692</b>	<b>30,144</b>	<b>99.43</b>	<b>174</b>	<b>0.57</b>			<b>30,318</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564159</b>	<b>26,116</b>	<b>86.14</b>	<b>4,119</b>	<b>13.59</b>	<b>83</b>	<b>0.27</b>	<b>30,318</b>	<b>100.00</b>
	0-1	3487925	29,847	98.45	471	1.55			30,318	100.00
	0-2	3564151	27,091	89.36	3,151	10.39	76	0.25	30,318	100.00
	0-1	3517725	30,178	99.54	140	0.46			30,318	100.00
	0-2	3564022	27,096	89.37	3,174	10.47	48	0.16	30,318	100.00
	<b>0-1</b>	<b>100000043347</b>	<b>30,184</b>	<b>99.56</b>	<b>134</b>	<b>0.44</b>			<b>30,318</b>	<b>100.00</b>
	<b>0-3</b>	<b>3595366</b>	<b>27,283</b>	<b>89.99</b>	<b>2,999</b>	<b>9.89</b>	<b>36</b>	<b>0.12</b>	<b>30,318</b>	<b>100.00</b>
	<b>0-1</b>	<b>3517648</b>	<b>29,993</b>	<b>98.93</b>	<b>325</b>	<b>1.07</b>			<b>30,318</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564027</b>	<b>25,226</b>	<b>83.2</b>	<b>4,716</b>	<b>15.56</b>	<b>376</b>	<b>1.24</b>	<b>30,318</b>	<b>100.00</b>
	0-1	3487678	29,953	98.80	365	1.20			30,318	100.00
	0-2	3564153	28,439	93.80	1,871	6.17	8	0.03	30,318	100.00
F	0-1	3517744	29,357	99.19	239	0.81			29,596	100.00
	0-2	3564018	24,167	81.66	5,304	17.92	125	0.42	29,596	100.00
	<b>0-1</b>	<b>3487765</b>	<b>29,263</b>	<b>98.87</b>	<b>333</b>	<b>1.13</b>			<b>29,596</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564141</b>	<b>24,900</b>	<b>84.13</b>	<b>4,404</b>	<b>14.88</b>	<b>292</b>	<b>0.99</b>	<b>29,596</b>	<b>100.00</b>
	0-1	3487925	29,118	98.38	478	1.62			29,596	100.00
	0-2	3564151	26,352	89.04	3,164	10.69	80	0.27	29,596	100.00
	0-1	100000048821	27,342	92.38	2,254	7.62			29,596	100.00
	0-2	3595371	25,665	86.72	3,904	13.19	27	0.09	29,596	100.00
	<b>0-1</b>	<b>100000012779</b>	<b>28,177</b>	<b>95.21</b>	<b>1,419</b>	<b>4.79</b>			<b>29,596</b>	<b>100.00</b>
	<b>0-3</b>	<b>3595378</b>	<b>24,482</b>	<b>82.72</b>	<b>5,000</b>	<b>16.89</b>	<b>114</b>	<b>0.39</b>	<b>29,596</b>	<b>100.00</b>
	<b>0-1</b>	<b>3517648</b>	<b>29,266</b>	<b>98.88</b>	<b>330</b>	<b>1.12</b>			<b>29,596</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564027</b>	<b>24,683</b>	<b>83.40</b>	<b>4,531</b>	<b>15.31</b>	<b>382</b>	<b>1.29</b>	<b>29,596</b>	<b>100.00</b>
	0-1	100000012810	28,912	97.69	684	2.31			29,596	100.00
	0-2	3595375	27,082	91.51	2,477	8.37	37	0.13	29,596	100.00

Note. Analysis was conducted with a statewide population.

Note. Bold-faced item indicates an ECR item.

**Table 4.20 The 2009 MSA-Mathematics Score Difference between Rater 1 and Rater 2: Grade 8**

Form	Score Range	Item CID	Perfect		Adjacent		Discrepancy		Total	
			N	%	N	%	N	%	N	%
A	0-1	3514013	30,473	99.07	287	0.93			30,760	100.00
	0-2	3564107	26,618	86.53	4,091	13.30	51	0.17	30,760	100.00
	<b>0-1</b>	<b>3487680</b>	<b>30,417</b>	<b>98.88</b>	<b>343</b>	<b>1.12</b>			<b>30,760</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564133</b>	<b>25,232</b>	<b>82.03</b>	<b>5,266</b>	<b>17.12</b>	<b>262</b>	<b>0.85</b>	<b>30,760</b>	<b>100.00</b>
	0-1	3487759	30,482	99.10	278	0.90			30,760	100.00
	0-2	3564128	27,669	89.95	3,080	10.01	11	0.04	30,760	100.00
	0-1	3514117	30,105	97.87	655	2.13			30,760	100.00
	0-2	3564111	24,884	80.90	5,784	18.80	92	0.30	30,760	100.00
	<b>0-1</b>	<b>3487934</b>	<b>30,550</b>	<b>99.32</b>	<b>210</b>	<b>0.68</b>			<b>30,760</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564122</b>	<b>24,938</b>	<b>81.07</b>	<b>5,480</b>	<b>17.82</b>	<b>342</b>	<b>1.11</b>	<b>30,760</b>	<b>100.00</b>
	0-1	3487633	30,019	97.59	741	2.41			30,760	100.00
	0-2	3564123	24,953	81.12	5,186	16.86	621	2.02	30,760	100.00
	<b>0-1</b>	<b>3514164</b>	<b>29,390</b>	<b>95.55</b>	<b>1,370</b>	<b>4.45</b>			<b>30,760</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564117</b>	<b>22,534</b>	<b>73.26</b>	<b>7,824</b>	<b>25.44</b>	<b>402</b>	<b>1.31</b>	<b>30,760</b>	<b>100.00</b>
	0-1	3487939	30,500	99.15	260	0.85			30,760	100.00
	0-2	3564124	29,630	96.33	1,111	3.61	19	0.06	30,760	100.00
F	0-1	3514283	30,043	99.21	239	0.79			30,282	100.00
	0-2	3564116	26,214	86.57	3,738	12.34	330	1.09	30,282	100.00
	<b>0-1</b>	<b>3491681</b>	<b>29,380</b>	<b>97.02</b>	<b>902</b>	<b>2.98</b>			<b>30,282</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564126</b>	<b>24,892</b>	<b>82.20</b>	<b>5,353</b>	<b>17.68</b>	<b>37</b>	<b>0.12</b>	<b>30,282</b>	<b>100.00</b>
	0-1	3514117	29,653	97.92	629	2.08			30,282	100.00
	0-2	3564111	24,553	81.08	5,648	18.65	81	0.27	30,282	100.00
	0-1	3487934	30,084	99.35	198	0.65			30,282	100.00
	0-2	3564122	24,717	81.62	5,278	17.43	287	0.95	30,282	100.00
	<b>0-1</b>	<b>3519815</b>	<b>29,886</b>	<b>98.69</b>	<b>396</b>	<b>1.31</b>			<b>30,282</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564138</b>	<b>25,189</b>	<b>83.18</b>	<b>5,062</b>	<b>16.72</b>	<b>31</b>	<b>0.10</b>	<b>30,282</b>	<b>100.00</b>
	0-1	100000043313	29,512	97.46	770	2.54			30,282	100.00
	0-2	3595407	24,188	79.88	5,462	18.04	632	2.09	30,282	100.00
	<b>0-1</b>	<b>3487939</b>	<b>30,066</b>	<b>99.29</b>	<b>216</b>	<b>0.71</b>			<b>30,282</b>	<b>100.00</b>
	<b>0-3</b>	<b>3564124</b>	<b>29,184</b>	<b>96.37</b>	<b>1,082</b>	<b>3.57</b>	<b>16</b>	<b>0.05</b>	<b>30,282</b>	<b>100.00</b>

Note. Analysis was conducted with a statewide population.

Note. Bold-faced item indicates an ECR item.

**Table 4.21 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 3 Form A**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	47
1	240 <sup>a</sup>	33
2	240 <sup>a</sup>	24
3	240 <sup>a</sup>	20
4	243	18
5	251	16
6	259	15
7	265	14
8	271	13
9	276	13
10	280	12
11	285	12
12	289	11
13	293	11
14	296	11
15	300	11
16	303	10
17	306	10
18	309	10
19	312	10
20	315	10
21	318	10
22	321	10
23	324	9
24	326	9
25	329	9
26	332	9
27	334	9
28	337	9
29	339	9
30	342	9
31	344	9
32	347	9
33	349	9
34	352	9
35	354	9
36	357	9
37	359	9
38	362	9
39	364	9
40	367	9
41	369	9
42	372	9
43	375	9
44	377	9
45	380	9

**Table 4.21 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	383	9
47	385	10
48	388	10
49	391	10
50	394	10
51	397	10
52	400	10
53	404	10
54	407	11
55	410	11
56	414	11
57	418	11
58	422	12
59	426	12
60	430	12
61	435	13
62	440	13
63	446	14
64	452	14
65	458	15
66	466	16
67	474	17
68	484	19
69	497	21
70	513	25
71	540	34
72	650 <sup>b</sup>	48

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.



**Table 4.22 The 2009 Total MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 3 Form F**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	47
1	240 <sup>a</sup>	34
2	240 <sup>a</sup>	24
3	240 <sup>a</sup>	20
4	244	18
5	253	16
6	260	15
7	267	14
8	273	13
9	278	13
10	283	12
11	288	12
12	292	12
13	296	11
14	300	11
15	303	11
16	307	11
17	310	10
18	313	10
19	316	10
20	319	10
21	322	10
22	325	10
23	328	10
24	331	9
25	333	9
26	336	9
27	339	9
28	341	9
29	344	9
30	346	9
31	349	9
32	351	9
33	354	9
34	356	9
35	359	9
36	361	9
37	364	9
38	366	9
39	369	9
40	371	9
41	374	9
42	376	9
43	379	9
44	382	9
45	384	9

**Table 4.22 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	387	9
47	390	10
48	393	10
49	395	10
50	398	10
51	401	10
52	405	10
53	408	10
54	411	11
55	415	11
56	418	11
57	422	11
58	426	12
59	431	12
60	435	12
61	440	13
62	445	13
63	451	14
64	457	15
65	464	15
66	472	16
67	481	18
68	491	19
69	504	22
70	521	26
71	547	35
72	650 <sup>b</sup>	48

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

**Table 4.23 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 3 Form A**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	48
AL	1	244	35
AL	2	272	27
AL	3	291	23
AL	4	306	21
AL	5	320	20
AL	6	332	20
AL	7	344	20
AL	8	357	20
AL	9	370	21
AL	10	385	23
AL	11	403	26
AL	12	431	35
AL	13	650	48
GM	0	240	48
GM	1	253	35
GM	2	281	27
GM	3	300	23
GM	4	315	21
GM	5	328	20
GM	6	340	20
GM	7	351	19
GM	8	363	19
GM	9	375	20
GM	10	387	21
GM	11	400	22
GM	12	416	23
GM	13	435	27
GM	14	463	35
GM	15	650	48
SP	0	240	48
SP	1	240	36
SP	2	269	27
SP	3	288	23
SP	4	303	22
SP	5	317	21
SP	6	329	20
SP	7	341	20
SP	8	353	20
SP	9	366	21
SP	10	380	22
SP	11	395	24
SP	12	415	27
SP	13	443	35
SP	14	650	48
NC	0	240	48
NC	1	248	36
NC	2	276	27

**Table 4.23 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	3	295	23
NC	4	310	21
NC	5	323	20
NC	6	335	19
NC	7	346	19
NC	8	357	19
NC	9	368	19
NC	10	379	19
NC	11	391	20
NC	12	404	21
NC	13	419	23
NC	14	437	27
NC	15	465	35
NC	16	650	48
PR	0	240	48
PR	1	286	36
PR	2	316	28
PR	3	336	24
PR	4	353	23
PR	5	369	22
PR	6	384	22
PR	7	399	22
PR	8	415	23
PR	9	431	24
PR	10	449	25
PR	11	469	26
PR	12	492	29
PR	13	524	37
PR	14	650	49

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.24 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 3 Form F**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	49
AL	1	240	36
AL	2	263	28
AL	3	283	24
AL	4	300	22
AL	5	315	21
AL	6	328	21
AL	7	341	21
AL	8	355	21
AL	9	369	22
AL	10	386	24
AL	11	407	28
AL	12	438	37
AL	13	650	50
GM	0	240	48
GM	1	253	35
GM	2	281	27
GM	3	299	23
GM	4	314	21
GM	5	327	20
GM	6	338	19
GM	7	350	19
GM	8	361	19
GM	9	372	19
GM	10	384	20
GM	11	397	21
GM	12	412	23
GM	13	431	26
GM	14	458	35
GM	15	650	48
SP	0	240	49
SP	1	245	37
SP	2	276	28
SP	3	297	25
SP	4	314	22
SP	5	328	21
SP	6	341	20
SP	7	354	20
SP	8	366	20
SP	9	379	21
SP	10	393	22
SP	11	408	24
SP	12	428	27
SP	13	456	36
SP	14	650	48
NC	0	240	48
NC	1	264	35
NC	2	292	26

**Table 4.24 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	3	310	23
NC	4	324	21
NC	5	336	19
NC	6	347	19
NC	7	358	18
NC	8	368	18
NC	9	378	18
NC	10	388	19
NC	11	399	19
NC	12	411	20
NC	13	425	22
NC	14	442	26
NC	15	469	35
NC	16	650	48
PR	0	240	49
PR	1	284	36
PR	2	314	28
PR	3	335	25
PR	4	352	23
PR	5	368	23
PR	6	384	23
PR	7	400	24
PR	8	418	25
PR	9	437	25
PR	10	457	26
PR	11	478	27
PR	12	501	29
PR	13	533	37
PR	14	650	49

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.25 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 4 Form A**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	47
1	240 <sup>a</sup>	34
2	244	24
3	258	20
4	269	18
5	278	16
6	285	15
7	291	14
8	297	13
9	302	13
10	307	12
11	311	12
12	315	11
13	319	11
14	322	11
15	326	11
16	329	10
17	332	10
18	335	10
19	338	10
20	341	10
21	344	10
22	347	9
23	349	9
24	352	9
25	355	9
26	357	9
27	360	9
28	362	9
29	365	9
30	367	9
31	370	9
32	372	9
33	375	9
34	377	9
35	380	9
36	382	9
37	384	9
38	387	9
39	389	9
40	392	9
41	394	9
42	397	9
43	400	9
44	402	9
45	405	9

**Table 4.25 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	408	10
47	411	10
48	414	10
49	417	10
50	420	10
51	423	10
52	426	11
53	430	11
54	433	11
55	437	11
56	441	12
57	445	12
58	450	12
59	454	13
60	459	13
61	465	14
62	471	14
63	478	15
64	485	16
65	494	17
66	503	18
67	515	20
68	528	22
69	546	26
70	574	35
71	650 <sup>b</sup>	48

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.



**Table 4.26 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 4 Form F**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	47
1	240 <sup>a</sup>	34
2	243	25
3	259	21
4	270	18
5	279	16
6	287	15
7	293	14
8	299	13
9	304	13
10	309	12
11	314	12
12	318	12
13	322	11
14	325	11
15	329	11
16	332	10
17	336	10
18	339	10
19	342	10
20	345	10
21	347	10
22	350	10
23	353	9
24	356	9
25	358	9
26	361	9
27	364	9
28	366	9
29	369	9
30	371	9
31	374	9
32	376	9
33	379	9
34	381	9
35	383	9
36	386	9
37	388	9
38	391	9
39	393	9
40	396	9
41	398	9
42	401	9
43	404	9
44	406	9
45	409	9

**Table 4.26 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	412	10
47	415	10
48	417	10
49	420	10
50	424	10
51	427	10
52	430	11
53	433	11
54	437	11
55	441	11
56	445	12
57	449	12
58	454	12
59	458	13
60	464	13
61	469	14
62	476	15
63	483	16
64	491	16
65	499	18
66	509	19
67	521	21
68	536	23
69	555	27
70	583	36
71	650 <sup>b</sup>	49

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

**Table 4.27 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 4 Form A**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	49
AL	1	267	36
AL	2	296	27
AL	3	315	23
AL	4	330	22
AL	5	343	20
AL	6	356	20
AL	7	367	20
AL	8	379	20
AL	9	391	20
AL	10	404	21
AL	11	419	23
AL	12	437	27
AL	13	465	35
AL	14	650	48
GM	0	240	48
GM	1	274	35
GM	2	302	27
GM	3	322	24
GM	4	338	22
GM	5	353	22
GM	6	367	21
GM	7	380	21
GM	8	393	21
GM	9	406	21
GM	10	421	22
GM	11	436	24
GM	12	456	27
GM	13	484	36
GM	14	650	48
SP	0	240	48
SP	1	281	35
SP	2	307	26
SP	3	324	22
SP	4	338	20
SP	5	350	19
SP	6	361	19
SP	7	371	19
SP	8	382	19
SP	9	393	19
SP	10	404	20
SP	11	417	21
SP	12	431	23
SP	13	449	26
SP	14	477	35
SP	15	650	48
NC	0	240	49
NC	1	268	36

**Table 4.27 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	2	297	27
NC	3	316	24
NC	4	332	21
NC	5	345	20
NC	6	357	20
NC	7	368	19
NC	8	380	19
NC	9	391	20
NC	10	404	21
NC	11	418	23
NC	12	436	26
NC	13	464	35
NC	14	650	48
PR	0	240	48
PR	1	313	35
PR	2	341	27
PR	3	360	24
PR	4	376	23
PR	5	392	22
PR	6	408	23
PR	7	425	25
PR	8	445	26
PR	9	466	27
PR	10	487	26
PR	11	509	27
PR	12	532	29
PR	13	564	37
PR	14	650	49

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.28 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 4 Form F**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	48
AL	1	260	35
AL	2	288	27
AL	3	307	23
AL	4	322	21
AL	5	335	20
AL	6	347	20
AL	7	358	19
AL	8	369	19
AL	9	381	20
AL	10	394	21
AL	11	408	23
AL	12	426	26
AL	13	453	35
AL	14	650	48
GM	0	240	52
GM	1	266	40
GM	2	302	30
GM	3	326	26
GM	4	344	23
GM	5	360	22
GM	6	374	21
GM	7	388	21
GM	8	401	21
GM	9	414	21
GM	10	429	22
GM	11	445	24
GM	12	464	27
GM	13	493	36
GM	14	650	49
SP	0	240	48
SP	1	284	35
SP	2	310	26
SP	3	328	22
SP	4	341	20
SP	5	353	19
SP	6	364	19
SP	7	374	18
SP	8	385	19
SP	9	395	19
SP	10	406	20
SP	11	419	21
SP	12	433	23
SP	13	451	26
SP	14	479	35
SP	15	650	48
NC	0	240	48
NC	1	285	35

**Table 4.28 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	2	313	27
NC	3	332	23
NC	4	346	21
NC	5	359	20
NC	6	371	19
NC	7	382	19
NC	8	393	19
NC	9	404	20
NC	10	417	21
NC	11	431	23
NC	12	449	26
NC	13	476	35
NC	14	650	48
PR	0	240	48
PR	1	316	36
PR	2	345	28
PR	3	365	24
PR	4	382	23
PR	5	398	23
PR	6	413	23
PR	7	431	25
PR	8	451	26
PR	9	473	27
PR	10	495	27
PR	11	517	27
PR	12	542	30
PR	13	575	37
PR	14	650	49

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.29 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 5 Form A**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	44
1	245	31
2	267	22
3	281	18
4	290	16
5	298	15
6	305	14
7	310	13
8	315	12
9	320	12
10	324	11
11	328	11
12	331	10
13	335	10
14	338	10
15	341	10
16	344	9
17	347	9
18	350	9
19	352	9
20	355	9
21	357	9
22	360	9
23	362	9
24	365	8
25	367	8
26	369	8
27	371	8
28	374	8
29	376	8
30	378	8
31	380	8
32	382	8
33	384	8
34	386	8
35	388	8
36	390	8
37	393	8
38	395	8
39	397	8
40	399	8
41	401	8
42	403	8
43	405	8
44	407	8
45	409	8

**Table 4.29 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	412	8
47	414	8
48	416	8
49	418	8
50	421	8
51	423	9
52	425	9
53	428	9
54	430	9
55	433	9
56	435	9
57	438	9
58	441	9
59	444	10
60	447	10
61	450	10
62	454	10
63	457	11
64	461	11
65	466	12
66	470	12
67	476	13
68	482	14
69	489	15
70	497	17
71	507	19
72	522	23
73	545	32
74	650 <sup>b</sup>	44

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.



**Table 4.30 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 5 Form F**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	44
1	242	31
2	265	22
3	278	19
4	288	16
5	296	15
6	302	14
7	308	13
8	313	12
9	318	12
10	322	11
11	326	11
12	329	10
13	333	10
14	336	10
15	339	10
16	342	10
17	345	9
18	348	9
19	351	9
20	353	9
21	356	9
22	358	9
23	361	9
24	363	9
25	366	9
26	368	9
27	371	8
28	373	8
29	375	8
30	377	8
31	380	8
32	382	8
33	384	8
34	387	8
35	389	8
36	391	8
37	393	8
38	396	8
39	398	8
40	400	8
41	402	8
42	405	8
43	407	8
44	409	8
45	412	9

**Table 4.30 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	414	9
47	416	9
48	419	9
49	421	9
50	424	9
51	426	9
52	429	9
53	432	9
54	434	9
55	437	9
56	440	9
57	442	9
58	445	10
59	448	10
60	452	10
61	455	10
62	458	10
63	462	11
64	466	11
65	470	12
66	475	12
67	480	13
68	486	14
69	493	15
70	501	17
71	511	19
72	525	23
73	547	31
74	650 <sup>b</sup>	44

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

**Table 4.31 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 5 Form A**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	45
AL	1	280	32
AL	2	305	24
AL	3	322	21
AL	4	335	19
AL	5	347	18
AL	6	357	18
AL	7	368	18
AL	8	378	18
AL	9	388	18
AL	10	399	19
AL	11	411	20
AL	12	425	21
AL	13	442	25
AL	14	467	33
AL	15	650	45
GM	0	240	45
GM	1	296	33
GM	2	323	25
GM	3	341	22
GM	4	356	21
GM	5	369	20
GM	6	382	19
GM	7	393	19
GM	8	405	19
GM	9	417	19
GM	10	430	20
GM	11	444	22
GM	12	461	25
GM	13	487	33
GM	14	650	45
SP	0	240	45
SP	1	300	33
SP	2	325	25
SP	3	342	21
SP	4	355	20
SP	5	367	19
SP	6	379	19
SP	7	390	19
SP	8	402	19
SP	9	414	20
SP	10	429	22
SP	11	447	26
SP	12	475	34
SP	13	650	46
NC	0	240	44
NC	1	308	32
NC	2	332	24

**Table 4.31 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	3	348	21
NC	4	360	19
NC	5	371	18
NC	6	381	17
NC	7	390	17
NC	8	399	17
NC	9	409	17
NC	10	418	18
NC	11	429	19
NC	12	442	21
NC	13	458	24
NC	14	482	32
NC	15	650	45
PR	0	240	45
PR	1	316	32
PR	2	341	24
PR	3	358	21
PR	4	370	19
PR	5	381	18
PR	6	391	17
PR	7	400	17
PR	8	409	16
PR	9	418	16
PR	10	426	16
PR	11	435	17
PR	12	445	18
PR	13	456	19
PR	14	470	22
PR	15	488	26
PR	16	517	35
PR	17	650	47

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.32 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 5 Form F**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	45
AL	1	276	33
AL	2	302	25
AL	3	319	21
AL	4	333	20
AL	5	344	19
AL	6	355	18
AL	7	366	18
AL	8	377	18
AL	9	387	18
AL	10	399	19
AL	11	412	21
AL	12	427	23
AL	13	448	28
AL	14	481	37
AL	15	650	49
GM	0	240	45
GM	1	299	33
GM	2	325	25
GM	3	343	22
GM	4	358	21
GM	5	371	20
GM	6	383	19
GM	7	396	19
GM	8	408	19
GM	9	420	20
GM	10	433	21
GM	11	448	22
GM	12	467	25
GM	13	494	33
GM	14	650	45
SP	0	240	45
SP	1	292	32
SP	2	317	24
SP	3	333	21
SP	4	346	19
SP	5	358	18
SP	6	368	18
SP	7	378	18
SP	8	389	18
SP	9	400	19
SP	10	413	21
SP	11	430	24
SP	12	454	32
SP	13	650	45
NC	0	240	45
NC	1	309	32
NC	2	334	24

**Table 4.32 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	3	350	21
NC	4	363	19
NC	5	374	18
NC	6	385	18
NC	7	394	17
NC	8	404	17
NC	9	414	18
NC	10	425	19
NC	11	437	20
NC	12	451	22
NC	13	470	26
NC	14	497	34
NC	15	650	46
PR	0	240	45
PR	1	313	33
PR	2	340	26
PR	3	359	23
PR	4	374	21
PR	5	388	20
PR	6	400	19
PR	7	411	18
PR	8	421	17
PR	9	429	16
PR	10	438	16
PR	11	446	16
PR	12	454	16
PR	13	463	17
PR	14	474	19
PR	15	488	23
PR	16	512	32
PR	17	650	44

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.33 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 6 Form A**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	42
1	253	30
2	275	22
3	288	18
4	298	16
5	306	15
6	313	14
7	318	13
8	324	12
9	328	12
10	333	11
11	337	11
12	340	10
13	344	10
14	347	10
15	350	10
16	354	9
17	356	9
18	359	9
19	362	9
20	365	9
21	367	9
22	370	9
23	372	9
24	375	8
25	377	8
26	379	8
27	382	8
28	384	8
29	386	8
30	389	8
31	391	8
32	393	8
33	395	8
34	397	8
35	399	8
36	401	8
37	404	8
38	406	8
39	408	8
40	410	8
41	412	8
42	414	8
43	417	8
44	419	8
45	421	8

**Table 4.33 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	423	8
47	426	8
48	428	8
49	430	9
50	433	9
51	436	9
52	438	9
53	441	9
54	444	9
55	447	9
56	450	10
57	453	10
58	457	10
59	460	11
60	464	11
61	469	12
62	474	12
63	479	13
64	485	14
65	492	15
66	501	17
67	511	19
68	526	23
69	550	31
70	650 <sup>b</sup>	43

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.



**Table 4.34 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 6 Form F**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	42
1	259	30
2	281	22
3	294	18
4	304	16
5	311	14
6	318	13
7	323	13
8	328	12
9	333	11
10	337	11
11	341	11
12	345	10
13	348	10
14	351	10
15	354	9
16	357	9
17	360	9
18	363	9
19	365	9
20	368	9
21	370	8
22	373	8
23	375	8
24	377	8
25	379	8
26	382	8
27	384	8
28	386	8
29	388	8
30	390	8
31	392	8
32	394	8
33	396	8
34	398	8
35	400	8
36	402	8
37	404	8
38	406	8
39	408	8
40	410	8
41	412	8
42	414	8
43	416	8
44	419	8
45	421	8

**Table 4.34 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	423	8
47	425	8
48	427	8
49	430	8
50	432	8
51	435	9
52	437	9
53	440	9
54	442	9
55	445	9
56	448	10
57	452	10
58	455	10
59	458	10
60	462	11
61	466	11
62	471	12
63	476	13
64	482	14
65	489	15
66	497	16
67	507	18
68	520	22
69	542	30
70	650 <sup>b</sup>	43

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

**Table 4.35 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 6 Form A**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	44
AL	1	284	33
AL	2	310	25
AL	3	328	22
AL	4	343	20
AL	5	355	19
AL	6	367	18
AL	7	378	18
AL	8	389	18
AL	9	400	18
AL	10	412	19
AL	11	426	21
AL	12	443	24
AL	13	468	32
AL	14	650	43
GM	0	240	43
GM	1	325	31
GM	2	349	23
GM	3	365	20
GM	4	378	18
GM	5	388	17
GM	6	398	17
GM	7	407	17
GM	8	417	17
GM	9	426	17
GM	10	437	18
GM	11	449	20
GM	12	464	23
GM	13	488	31
GM	14	650	43
SP	0	240	44
SP	1	301	32
SP	2	327	25
SP	3	344	22
SP	4	359	20
SP	5	372	20
SP	6	385	19
SP	7	398	20
SP	8	411	20
SP	9	425	21
SP	10	442	23
SP	11	462	26
SP	12	492	34
SP	13	650	45
NC	0	240	43
NC	1	320	32
NC	2	344	24
NC	3	360	20

**Table 4.35 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	4	373	19
NC	5	384	18
NC	6	394	17
NC	7	403	17
NC	8	413	17
NC	9	423	17
NC	10	433	18
NC	11	445	20
NC	12	461	23
NC	13	484	31
NC	14	650	43
PR	0	240	44
PR	1	312	33
PR	2	339	25
PR	3	358	22
PR	4	373	20
PR	5	386	19
PR	6	397	18
PR	7	408	18
PR	8	418	18
PR	9	429	18
PR	10	440	19
PR	11	453	20
PR	12	468	23
PR	13	489	27
PR	14	522	36
PR	15	650	47

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.36 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 6 Form F**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	44
AL	1	308	32
AL	2	333	24
AL	3	350	21
AL	4	364	19
AL	5	375	18
AL	6	386	17
AL	7	396	17
AL	8	406	17
AL	9	416	18
AL	10	427	19
AL	11	440	20
AL	12	455	23
AL	13	479	31
AL	14	650	43
GM	0	240	43
GM	1	321	31
GM	2	345	23
GM	3	361	20
GM	4	373	18
GM	5	383	17
GM	6	393	17
GM	7	402	17
GM	8	411	17
GM	9	421	17
GM	10	432	18
GM	11	444	20
GM	12	459	23
GM	13	483	31
GM	14	650	43
SP	0	240	43
SP	1	288	32
SP	2	313	24
SP	3	329	21
SP	4	343	19
SP	5	355	18
SP	6	366	18
SP	7	377	18
SP	8	388	18
SP	9	400	19
SP	10	413	21
SP	11	430	24
SP	12	455	32
SP	13	650	43
NC	0	240	43
NC	1	324	32
NC	2	348	24
NC	3	364	20

**Table 4.36 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	4	377	18
NC	5	388	17
NC	6	397	17
NC	7	407	17
NC	8	416	17
NC	9	426	17
NC	10	436	18
NC	11	448	20
NC	12	464	23
NC	13	487	31
NC	14	650	43
PR	0	240	44
PR	1	332	32
PR	2	357	24
PR	3	373	20
PR	4	385	18
PR	5	396	17
PR	6	405	17
PR	7	415	17
PR	8	424	17
PR	9	434	17
PR	10	445	18
PR	11	457	20
PR	12	472	22
PR	13	491	25
PR	14	518	33
PR	15	650	44

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.37 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 7 Form A**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	40
1	275	29
2	295	21
3	308	17
4	317	15
5	324	14
6	330	12
7	335	12
8	340	11
9	344	11
10	348	10
11	351	10
12	354	10
13	358	9
14	361	9
15	363	9
16	366	9
17	369	9
18	371	8
19	374	8
20	376	8
21	378	8
22	381	8
23	383	8
24	385	8
25	387	8
26	389	8
27	391	8
28	394	8
29	396	8
30	398	8
31	400	8
32	402	8
33	404	8
34	406	7
35	408	7
36	410	7
37	412	7
38	414	8
39	416	8
40	418	8
41	420	8
42	422	8
43	424	8
44	426	8
45	428	8

**Table 4.37 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	430	8
47	432	8
48	435	8
49	437	8
50	439	8
51	441	8
52	444	8
53	446	8
54	449	9
55	452	9
56	454	9
57	457	9
58	460	9
59	463	10
60	467	10
61	471	10
62	474	11
63	479	11
64	483	12
65	489	13
66	495	13
67	502	15
68	510	16
69	521	19
70	537	23
71	562	32
72	650 <sup>b</sup>	43

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.



**Table 4.38 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 7 Form F**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	40
1	276	29
2	296	21
3	309	17
4	318	15
5	325	14
6	331	12
7	336	12
8	341	11
9	345	11
10	348	10
11	352	10
12	355	10
13	358	9
14	361	9
15	364	9
16	367	9
17	370	9
18	372	8
19	375	8
20	377	8
21	379	8
22	382	8
23	384	8
24	386	8
25	388	8
26	390	8
27	393	8
28	395	8
29	397	8
30	399	8
31	401	8
32	403	8
33	405	8
34	407	8
35	409	8
36	411	8
37	413	8
38	415	8
39	417	8
40	419	8
41	422	8
42	424	8
43	426	8
44	428	8
45	430	8

**Table 4.38 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	433	8
47	435	8
48	437	8
49	440	8
50	442	8
51	445	9
52	448	9
53	450	9
54	453	9
55	456	9
56	459	9
57	462	10
58	466	10
59	469	10
60	473	11
61	477	11
62	482	11
63	486	12
64	492	12
65	498	13
66	504	14
67	512	15
68	521	17
69	531	19
70	546	22
71	569	30
72	650 <sup>b</sup>	41

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

**Table 4.39 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 7 Form A**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	41
AL	1	330	30
AL	2	353	22
AL	3	368	19
AL	4	380	18
AL	5	390	17
AL	6	400	16
AL	7	410	16
AL	8	419	17
AL	9	429	17
AL	10	441	18
AL	11	453	20
AL	12	470	23
AL	13	494	31
AL	14	650	42
GM	0	240	42
GM	1	340	31
GM	2	365	23
GM	3	382	20
GM	4	395	19
GM	5	407	18
GM	6	418	17
GM	7	429	17
GM	8	439	18
GM	9	451	18
GM	10	464	20
GM	11	480	23
GM	12	503	30
GM	13	650	41
SP	0	240	41
SP	1	318	30
SP	2	341	22
SP	3	355	19
SP	4	367	18
SP	5	378	17
SP	6	387	16
SP	7	396	16
SP	8	405	16
SP	9	415	17
SP	10	426	18
SP	11	438	19
SP	12	453	22
SP	13	476	30
SP	14	650	41
NC	0	240	43
NC	1	319	32
NC	2	346	24
NC	3	363	21

**Table 4.39 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	4	377	19
NC	5	389	18
NC	6	399	17
NC	7	409	17
NC	8	419	17
NC	9	429	17
NC	10	440	18
NC	11	452	19
NC	12	467	22
NC	13	491	30
NC	14	650	41
PR	0	240	41
PR	1	317	29
PR	2	339	22
PR	3	354	19
PR	4	366	18
PR	5	377	17
PR	6	387	17
PR	7	397	17
PR	8	407	17
PR	9	417	17
PR	10	427	17
PR	11	438	18
PR	12	449	19
PR	13	463	20
PR	14	479	23
PR	15	503	28
PR	16	540	38
PR	17	650	47

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.40 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 7 Form F**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	41
AL	1	334	30
AL	2	357	22
AL	3	373	19
AL	4	385	18
AL	5	396	17
AL	6	406	17
AL	7	415	17
AL	8	425	17
AL	9	435	17
AL	10	446	18
AL	11	459	20
AL	12	475	23
AL	13	498	30
AL	14	650	41
GM	0	240	41
GM	1	337	30
GM	2	361	23
GM	3	377	20
GM	4	390	18
GM	5	402	18
GM	6	412	17
GM	7	423	17
GM	8	434	18
GM	9	446	19
GM	10	459	20
GM	11	476	23
GM	12	501	31
GM	13	650	42
SP	0	240	41
SP	1	320	30
SP	2	343	22
SP	3	358	19
SP	4	370	18
SP	5	381	17
SP	6	390	16
SP	7	400	16
SP	8	409	16
SP	9	419	17
SP	10	429	18
SP	11	442	19
SP	12	457	23
SP	13	481	30
SP	14	650	41
NC	0	240	43
NC	1	319	32
NC	2	345	24
NC	3	363	21

**Table 4.40 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	4	377	19
NC	5	389	18
NC	6	399	17
NC	7	409	17
NC	8	419	17
NC	9	429	17
NC	10	440	18
NC	11	453	20
NC	12	468	23
NC	13	492	30
NC	14	650	41
PR	0	240	40
PR	1	318	29
PR	2	340	22
PR	3	354	19
PR	4	366	18
PR	5	377	17
PR	6	387	17
PR	7	398	18
PR	8	409	18
PR	9	422	19
PR	10	436	21
PR	11	452	22
PR	12	469	23
PR	13	488	23
PR	14	507	24
PR	15	528	25
PR	16	555	32
PR	17	650	42

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.41 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 8 Form A**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	41
1	286	29
2	307	21
3	320	17
4	329	15
5	337	14
6	343	13
7	349	12
8	354	11
9	358	11
10	362	11
11	366	10
12	369	10
13	373	10
14	376	9
15	379	9
16	381	9
17	384	9
18	387	8
19	389	8
20	392	8
21	394	8
22	396	8
23	398	8
24	400	8
25	403	8
26	405	8
27	407	8
28	409	8
29	411	7
30	413	7
31	415	7
32	416	7
33	418	7
34	420	7
35	422	7
36	424	7
37	426	7
38	428	7
39	430	7
40	431	7
41	433	7
42	435	7
43	437	7
44	439	7
45	441	7

**Table 4.41 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	443	7
47	445	8
48	447	8
49	449	8
50	451	8
51	453	8
52	455	8
53	458	8
54	460	8
55	462	8
56	465	9
57	468	9
58	470	9
59	473	9
60	476	10
61	480	10
62	483	10
63	487	11
64	492	11
65	496	12
66	502	13
67	508	14
68	515	15
69	525	17
70	538	21
71	558	29
72	650 <sup>b</sup>	41

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.



**Table 4.42 The 2009 MSA-Math Total Raw Score to Scale Score Conversion Table: Grade 8 Form F**

Raw Score	Scale Score (SS)	Standard Error (SE)
0	240 <sup>a</sup>	41
1	287	29
2	308	21
3	320	17
4	330	15
5	337	14
6	343	13
7	349	12
8	353	11
9	358	11
10	362	10
11	365	10
12	369	10
13	372	9
14	375	9
15	378	9
16	381	9
17	383	9
18	386	8
19	388	8
20	391	8
21	393	8
22	395	8
23	397	8
24	400	8
25	402	8
26	404	8
27	406	8
28	408	8
29	410	8
30	412	8
31	414	8
32	416	8
33	418	8
34	420	8
35	422	8
36	424	8
37	426	8
38	428	8
39	430	8
40	432	8
41	434	8
42	436	8
43	438	8
44	441	8
45	443	8

**Table 4.42 (continued)**

Raw Score	Scale Score (SS)	Standard Error (SE)
46	445	8
47	447	8
48	449	8
49	452	8
50	454	8
51	457	8
52	459	9
53	462	9
54	465	9
55	468	9
56	471	9
57	474	10
58	477	10
59	481	10
60	484	11
61	489	11
62	493	12
63	498	12
64	504	13
65	510	14
66	518	15
67	527	18
68	540	21
69	561	29
70	650 <sup>b</sup>	41

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

**Table 4.43 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 8 Form A**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	43
AL	1	326	32
AL	2	353	24
AL	3	370	20
AL	4	383	18
AL	5	394	17
AL	6	404	16
AL	7	414	16
AL	8	423	16
AL	9	432	16
AL	10	441	17
AL	11	452	18
AL	12	464	19
AL	13	479	22
AL	14	502	30
AL	15	650	41
GM	0	240	43
GM	1	339	32
GM	2	366	24
GM	3	384	21
GM	4	398	19
GM	5	411	18
GM	6	422	18
GM	7	433	17
GM	8	444	18
GM	9	455	18
GM	10	468	20
GM	11	483	23
GM	12	507	30
GM	13	650	41
SP	0	240	41
SP	1	339	30
SP	2	363	23
SP	3	378	20
SP	4	390	18
SP	5	401	17
SP	6	412	17
SP	7	422	17
SP	8	432	17
SP	9	443	18
SP	10	455	20
SP	11	471	23
SP	12	495	30
SP	13	650	42
NC	0	240	41
NC	1	348	30
NC	2	372	23
NC	3	388	20

**Table 4.43 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	4	401	19
NC	5	413	18
NC	6	424	18
NC	7	436	18
NC	8	448	19
NC	9	462	21
NC	10	479	23
NC	11	504	31
NC	12	650	42
PR	0	240	42
PR	1	333	31
PR	2	358	23
PR	3	375	20
PR	4	387	18
PR	5	397	16
PR	6	406	15
PR	7	414	14
PR	8	421	14
PR	9	428	14
PR	10	434	14
PR	11	441	14
PR	12	447	14
PR	13	454	15
PR	14	463	16
PR	15	472	17
PR	16	484	20
PR	17	501	24
PR	18	527	31
PR	19	650	42

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.

**Table 4.44 The 2009 MSA-Math Subtotal Raw Score to Scale Score Conversion Table: Grade 8 Form F**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
AL	0	240	41
AL	1	345	30
AL	2	368	22
AL	3	383	19
AL	4	395	18
AL	5	405	17
AL	6	414	16
AL	7	423	16
AL	8	431	16
AL	9	440	16
AL	10	449	16
AL	11	459	17
AL	12	471	19
AL	13	486	22
AL	14	509	30
AL	15	650	41
GM	0	240	42
GM	1	349	30
GM	2	373	23
GM	3	389	20
GM	4	402	18
GM	5	413	18
GM	6	424	17
GM	7	435	17
GM	8	445	18
GM	9	457	19
GM	10	470	20
GM	11	486	23
GM	12	510	30
GM	13	650	41
SP	0	240	42
SP	1	332	30
SP	2	356	23
SP	3	372	20
SP	4	385	19
SP	5	397	18
SP	6	408	18
SP	7	419	18
SP	8	430	18
SP	9	442	19
SP	10	455	20
SP	11	472	23
SP	12	497	31
SP	13	650	42
NC	0	240	42
NC	1	336	31
NC	2	361	23
NC	3	378	20

**Table 4.44 (continued)**

Strand	Raw Score	Scale Score (SS)	Standard Error (SE)
NC	4	391	19
NC	5	403	18
NC	6	415	18
NC	7	426	18
NC	8	438	19
NC	9	451	20
NC	10	467	23
NC	11	491	30
NC	12	650	42
PR	0	240	43
PR	1	326	32
PR	2	353	24
PR	3	369	20
PR	4	382	18
PR	5	392	17
PR	6	402	16
PR	7	411	16
PR	8	420	16
PR	9	429	16
PR	10	438	16
PR	11	448	17
PR	12	459	18
PR	13	472	20
PR	14	487	22
PR	15	506	25
PR	16	533	32
PR	17	650	42

Note. <sup>a</sup>LOSS was set to 240.

Note. <sup>b</sup>HOSS was set to 650.

Note. AL=Algebra, GM=Geometry and Measurement, SP=Statistics and Probability, NC=Numbers and Computation, PR=Process.