TIMSS Advanced 2015 Mathematics Item Parameters

Item		Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
Items Released in 2008:						
M1_01	MA13001	1.070 (0.069)	-0.322 (0.059)	0.111 (0.027)		
M1_02	MA13002	1.325 (0.099)	0.118 (0.051)	0.204 (0.025)		
M1_03	MA13003	0.580 (0.073)	0.532 (0.139)	0.200 (0.043)		
M1_04	MA13004	0.941 (0.090)	0.176 (0.087)	0.275 (0.034)		
M1_06	MA13006	0.895 (0.068)	0.390 (0.057)	0.095 (0.023)		
M1_07	MA13007	0.913 (0.083)	0.398 (0.073)	0.192 (0.029)		
M1_08	MA13008	1.064 (0.080)	-0.293 (0.074)	0.205 (0.034)		
M1_09	MA13009	0.732 (0.082)	0.538 (0.101)	0.221 (0.035)		
M3_01	MA13021	0.453 (0.069)	0.031 (0.292)	0.278 (0.070)		
M3_04	MA13024	1.243 (0.116)	0.572 (0.055)	0.255 (0.023)		
M3_05A	MA13025A	0.567 (0.034)	0.152 (0.048)			
M3_05B	MA13025B	0.877 (0.062)	1.922 (0.093)			
M3_06A	MA13026A	0.600 (0.035)	-0.340 (0.052)			
M3_06B	MA13026B	0.847 (0.052)	1.449 (0.064)			
M3_07	MA13027	0.468 (0.016)	0.770 (0.037)		-2.253 (0.119)	2.253 (0.124)
M3_08	MA13028	0.469 (0.044)	2.422 (0.192)			
M3_09	MA13029	0.426 (0.016)	0.548 (0.040)		-1.736 (0.109)	1.736 (0.112)
M6_01	MA23069	1.036 (0.124)	0.460 (0.077)	0.170 (0.030)		
M6_02	MA23135	0.573 (0.046)	0.013 (0.067)			
M6_03	MA23208	0.896 (0.127)	0.799 (0.089)	0.166 (0.030)		
M6_04	MA23165	0.645 (0.051)	0.460 (0.066)			
M6_05	MA23039	0.718 (0.080)	-0.306 (0.131)	0.151 (0.045)		
M6_06	MA23159	0.640 (0.048)	-0.420 (0.066)			
M6_07	MA23198	1.237 (0.084)	0.681 (0.042)			
M6_08	MA23042	1.046 (0.166)	0.571 (0.102)	0.333 (0.036)		
M6_09	MA23055	0.964 (0.112)	0.500 (0.076)	0.134 (0.029)		
M6_10	MA23080	1.182 (0.119)	0.272 (0.063)	0.135 (0.027)		
M6_11	MA23021	1.931 (0.286)	1.191 (0.055)	0.160 (0.016)		
M7_01	MA23004	0.797 (0.152)	0.904 (0.136)	0.300 (0.044)		
M7_02	MA23063	1.242 (0.207)	1.477 (0.087)	0.144 (0.020)		
M7_03	MA23141	1.030 (0.076)	0.953 (0.053)			
M7_04	MA23133	0.937 (0.135)	1.207 (0.085)	0.108 (0.024)		
M7_05	MA23158	1.486 (0.211)	1.304 (0.064)	0.124 (0.017)		
M7_06	MA23151	0.833 (0.133)	0.749 (0.116)	0.227 (0.041)		
M7_07A	MA23035A	0.995 (0.069)	0.424 (0.045)			
M7_07B	MA23035B	0.897 (0.076)	1.250 (0.076)			
M7_08	MA23050	1.085 (0.226)	1.482 (0.111)	0.237 (0.027)		
M7_09	MA23041	0.882 (0.144)	1.014 (0.101)	0.185 (0.035)		
M7_10	MA23182	1.291 (0.166)	0.660 (0.069)	0.198 (0.030)		
M7_11	MA23170	1.005 (0.077)	0.833 (0.054)			

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	Item	Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
Items Common in 2008 and 2015:						
M1_01	MA13011	0.925 (0.060)	0.201 (0.056)	0.155 (0.024)		
M1_02	MA13012	1.098 (0.089)	1.030 (0.043)	0.176 (0.015)		
M1_03	MA13013	1.051 (0.067)	0.088 (0.055)	0.207 (0.025)		
M1_05	MA13015	0.682 (0.054)	-0.171 (0.117)	0.214 (0.041)		
M1_06	MA13016	0.579 (0.079)	1.694 (0.105)	0.154 (0.025)		
M1_07	MA13017	0.743 (0.055)	0.790 (0.055)	0.091 (0.020)		
M1_08	MA13018	0.364 (0.040)	-0.530 (0.315)	0.186 (0.071)		
M1_09	MA13019	1.136 (0.138)	1.793 (0.074)	0.185 (0.012)		
M1_10	MA13020	1.580 (0.156)	1.308 (0.042)	0.274 (0.012)		
M3_01	MA23005	0.554 (0.053)	0.270 (0.121)	0.179 (0.038)		
M3_02	MA23145	0.561 (0.027)	0.595 (0.044)			
M3_03	MA23187	0.321 (0.010)	-0.145 (0.036)		-1.660 (0.092)	1.660 (0.090)
M3_04	MA23201	0.813 (0.031)	0.031 (0.027)			
M3_05	MA23154	0.449 (0.012)	-0.164 (0.027)		-1.246 (0.069)	1.246 (0.067)
M3_06	MA23206	1.232 (0.074)	-0.048 (0.046)	0.227 (0.022)		
M3_07	MA23166	1.158 (0.057)	1.542 (0.048)			
M3_08	MA23043	0.560 (0.016)	0.969 (0.031)		-1.102 (0.060)	1.102 (0.069)
M3_09	MA23076	0.744 (0.056)	0.177 (0.075)	0.171 (0.028)		
M3_10	MA23176	0.734 (0.074)	0.417 (0.096)	0.308 (0.031)		
M3_11	MA23098	1.044 (0.109)	1.096 (0.056)	0.275 (0.017)		
M5_01	MA23144	1.045 (0.086)	0.965 (0.045)	0.182 (0.016)		
M5_02	MA23185	0.733 (0.072)	0.787 (0.077)	0.195 (0.027)		
M5_03	MA23054	0.593 (0.018)	0.851 (0.027)		-0.546 (0.048)	0.546 (0.056)
M5_04	MA23064	0.753 (0.074)	1.207 (0.064)	0.138 (0.020)		
M5_05A	MA23131A	0.927 (0.036)	0.434 (0.026)			
M5_05B	MA23131B	0.889 (0.043)	1.490 (0.052)			
M5_06	MA23157	0.675 (0.025)	0.798 (0.027)		0.489 (0.035)	-0.489 (0.046)
M5_07	MA23045	1.133 (0.121)	1.531 (0.059)	0.175 (0.012)		
M5_08	MA23082	0.739 (0.074)	0.356 (0.104)	0.300 (0.034)		
M5_09	MA23020	0.892 (0.107)	1.157 (0.071)	0.316 (0.021)		
M5_10	MA23094	0.491 (0.019)	1.547 (0.054)		-0.479 (0.059)	0.479 (0.082)

TIMSS Advanced 2015 Mathematics Item Parameters

	Item	Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
Items Introduced in 2015:						
M2_01	MA33086	0.989 (0.097)	-0.371 (0.109)	0.160 (0.054)		
M2_02	MA33225	0.517 (0.023)	-0.186 (0.039)		-0.786 (0.090)	0.786 (0.087)
M2_03	MA33142	0.693 (0.049)	0.816 (0.065)			
M2_04	MA33044	0.792 (0.142)	1.109 (0.118)	0.251 (0.037)		
M2_05	MA33179	1.134 (0.064)	0.485 (0.036)			
M2_06	MA33076	0.414 (0.131)	1.128 (0.389)	0.245 (0.100)		
M2_07	MA33140	0.809 (0.102)	0.335 (0.115)	0.145 (0.047)		
M2_08	MA33007	0.878 (0.096)	0.105 (0.105)	0.149 (0.046)		
M2_09	MA33214	1.100 (0.068)	0.934 (0.048)			
M2_10	MA33171	0.898 (0.105)	0.456 (0.089)	0.147 (0.037)		
M2_11	MA33039	0.805 (0.049)	0.025 (0.043)			
M2_12	MA33180	0.541 (0.043)	0.892 (0.084)			
M4_01	MA33008	0.780 (0.050)	0.356 (0.047)			
M4_02	MA33121	0.662 (0.034)	0.579 (0.039)		0.004 (0.060)	-0.004 (0.072)
M4_03	MA33240	0.439 (0.022)	0.318 (0.047)		-0.627 (0.095)	0.627 (0.101)
M4_04	MA33050	0.945 (0.095)	0.502 (0.065)	0.070 (0.027)		
M4_05	MA33046	0.766 (0.090)	-0.608 (0.187)	0.177 (0.078)		
M4_06	MA33162	1.094 (0.143)	0.629 (0.077)	0.243 (0.031)		
M4_07	MA33163	1.214 (0.122)	0.223 (0.065)	0.175 (0.031)		
M4_08	MA33066	0.804 (0.096)	0.507 (0.089)	0.098 (0.037)		
M4_09	MA33182	1.014 (0.127)	0.606 (0.078)	0.191 (0.032)		
M4_10	MA33232	0.726 (0.032)	0.338 (0.032)		-0.378 (0.063)	0.378 (0.068)
M4_11	MA33178	0.709 (0.050)	0.202 (0.052)			
M6_01	MA33201	0.992 (0.169)	0.869 (0.100)	0.340 (0.034)		
M6_02	MA33016	1.171 (0.196)	0.758 (0.093)	0.419 (0.031)		
M6_03	MA33083	0.846 (0.053)	0.286 (0.042)			
M6_04	MA33143	1.055 (0.066)	0.801 (0.045)			
M6_05	MA33198	0.572 (0.101)	-0.223 (0.323)	0.243 (0.100)		
M6_06	MA33227	0.875 (0.061)	0.983 (0.059)			
M6_07	MA33079	1.064 (0.132)	0.428 (0.085)	0.249 (0.036)		
M6_08	MA33220	0.543 (0.030)	0.145 (0.039)		-0.039 (0.075)	0.039 (0.077)
M6_09	MA33150	0.545 (0.080)	-0.294 (0.268)	0.072 (0.095)		
M6_10	MA33233	0.459 (0.019)	0.530 (0.045)		-1.741 (0.122)	1.741 (0.128)
M6_11	MA33157	0.657 (0.114)	1.047 (0.122)	0.124 (0.044)		
M6_12	MA33155	1.093 (0.090)	1.584 (0.085)			
M7_01	MA33202	0.902 (0.100)	0.493 (0.077)	0.103 (0.034)		
M7_02	MA33042	0.978 (0.057)	-0.323 (0.040)			
M7_03	MA33094	0.587 (0.044)	0.079 (0.057)			
M7_04	MA33123	1.153 (0.147)	0.844 (0.065)	0.180 (0.026)		
M7_05	MA33137	0.894 (0.124)	0.655 (0.095)	0.201 (0.038)		
M7_06	MA33067	1.347 (0.075)	0.392 (0.031)			
M7_07	MA33012	0.831 (0.039)	1.005 (0.039)		-0.430 (0.062)	0.430 (0.077)
M7_08	MA33075	1.250 (0.157)	0.926 (0.060)	0.161 (0.022)		
M7_09	MA33212	1.496 (0.209)	1.000 (0.059)	0.234 (0.021)		
M7_10	MA33186	1.113 (0.186)	0.763 (0.096)	0.379 (0.033)		
M7_11	MA33239	0.467 (0.026)	0.874 (0.058)		-0.629 (0.094)	0.629 (0.111)
M7_12	MA33038	0.847 (0.060)	0.695 (0.054)			

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	Item	Slope (a_j)	Location (b_j)	Guessing (c_j)	Step 1 (d_{j1})	Step 2 (d_{j2})
M8_01	MA33027	1.007 (0.106)	-0.035 (0.092)	0.183 (0.043)		
M8_02	MA33091	0.518 (0.042)	0.430 (0.070)			
M8_03	MA33106	1.461 (0.164)	0.601 (0.053)	0.211 (0.023)		
M8_04	MA33090	0.527 (0.027)	0.280 (0.040)		-0.327 (0.077)	0.327 (0.083)
M8_05	MA33126	0.999 (0.131)	0.225 (0.106)	0.301 (0.042)		
M8_06	MA33118	0.311 (0.021)	0.458 (0.069)		-0.477 (0.123)	0.477 (0.135)
M8_07	MA33243	0.657 (0.027)	0.887 (0.040)		-1.967 (0.133)	1.967 (0.141)
M8_08	MA33229	1.220 (0.091)	1.390 (0.069)			
M8_09	MA33011	0.851 (0.084)	0.314 (0.073)	0.050 (0.032)		
M8_10	MA33159	0.921 (0.058)	0.600 (0.046)			
M8_11	MA33054	0.891 (0.124)	0.962 (0.082)	0.129 (0.028)		
M9_01	MA33085	1.228 (0.138)	0.319 (0.073)	0.253 (0.033)		
M9_02	MA33190	0.449 (0.039)	-0.664 (0.088)			
M9_03	MA33115	1.059 (0.166)	1.097 (0.085)	0.249 (0.027)		
M9_04	MA33237	0.933 (0.056)	0.407 (0.041)			
M9_05	MA33077	0.769 (0.118)	0.678 (0.122)	0.210 (0.045)		
M9_06	MA33132	0.611 (0.130)	0.915 (0.188)	0.263 (0.059)		
M9_07	MA33218	0.636 (0.026)	0.737 (0.038)		-1.373 (0.099)	1.373 (0.107)
M9_08	MA33236	0.621 (0.029)	0.809 (0.043)		-0.519 (0.074)	0.519 (0.087)
M9_09	MA33181	0.697 (0.097)	-0.240 (0.210)	0.202 (0.079)		
M9_10	MA33002	0.822 (0.053)	0.430 (0.047)			
M9_11	MA33169	1.228 (0.252)	1.341 (0.103)	0.373 (0.024)		
M9_12	MA33235	1.248 (0.082)	0.970 (0.047)			