

Appendix E

PERCENTILES AND STANDARD DEVIATIONS OF MATHEMATICS ACHIEVEMENT

Table E.1
Percentiles of Achievement in Mathematics
Upper Grade (Eighth Grade*)

Country	5th Percentile	25th Percentile	50th Percentile	75th Percentile	95th Percentile
Australia	372 (4.1)	460 (1.5)	529 (7.0)	600 (7.2)	690 (5.4)
Austria	393 (5.1)	474 (4.1)	537 (5.8)	608 (2.6)	693 (6.4)
Belgium (Fl)	416 (7.7)	502 (8.7)	566 (8.7)	631 (5.7)	710 (3.5)
Belgium (Fr)	385 (13.8)	467 (1.1)	532 (5.5)	587 (3.7)	658 (6.2)
Bulgaria	378 (11.4)	460 (4.2)	530 (10.6)	621 (13.8)	728 (0.4)
Canada	389 (3.3)	468 (2.0)	527 (2.7)	587 (2.4)	670 (3.7)
Colombia	292 (5.8)	343 (4.4)	379 (3.6)	421 (6.1)	496 (7.5)
Cyprus	333 (3.3)	412 (1.2)	469 (1.6)	535 (3.2)	621 (7.3)
Czech Republic	423 (3.5)	496 (2.6)	558 (7.5)	633 (8.5)	725 (12.6)
Denmark	369 (9.8)	443 (2.9)	500 (4.9)	561 (2.2)	641 (5.9)
England	361 (8.8)	443 (4.8)	501 (3.5)	570 (2.7)	665 (4.1)
France	415 (5.2)	484 (1.4)	534 (3.0)	591 (2.5)	666 (3.4)
Germany	368 (8.2)	448 (9.4)	506 (6.3)	572 (7.5)	661 (10.9)
Greece	347 (2.8)	422 (1.9)	478 (3.8)	546 (3.6)	633 (6.6)
Hong Kong	415 (14.2)	526 (6.8)	595 (5.9)	659 (4.9)	742 (5.4)
Hungary	391 (2.3)	471 (2.1)	534 (2.6)	602 (2.7)	693 (9.2)
Iceland	365 (4.3)	435 (3.3)	481 (6.2)	540 (4.8)	615 (21.0)
Iran, Islamic Rep.	336 (4.4)	388 (2.2)	424 (2.9)	466 (5.8)	535 (9.8)
Ireland	381 (6.5)	462 (4.9)	526 (8.2)	594 (9.6)	681 (3.3)
Israel	371 (6.3)	459 (7.5)	523 (9.3)	586 (4.9)	672 (7.2)
Japan	435 (2.1)	536 (6.8)	608 (2.5)	676 (1.4)	771 (4.8)
Korea	418 (4.0)	540 (5.0)	609 (3.9)	682 (2.7)	786 (7.1)
Kuwait	302 (4.7)	355 (3.5)	389 (5.0)	427 (3.2)	493 (6.1)
Latvia (LSS)	375 (5.2)	435 (2.6)	487 (3.3)	550 (4.3)	638 (8.1)
Lithuania	348 (5.0)	422 (3.1)	473 (5.3)	533 (4.3)	616 (8.5)
Netherlands	397 (10.6)	477 (9.1)	543 (9.2)	604 (7.4)	688 (6.9)
New Zealand	366 (3.1)	443 (4.0)	503 (5.0)	570 (5.5)	663 (9.1)
Norway	372 (5.5)	445 (2.0)	499 (2.8)	560 (3.1)	649 (5.9)
Portugal	357 (3.0)	411 (1.0)	449 (2.2)	495 (6.7)	569 (7.1)
Romania	343 (3.1)	418 (3.0)	476 (5.5)	544 (5.2)	635 (9.7)
Russian Federation	388 (4.5)	471 (5.6)	536 (11.3)	600 (8.2)	687 (2.9)
Scotland	364 (2.1)	436 (3.2)	493 (7.2)	559 (7.1)	649 (15.3)
Singapore	499 (5.8)	584 (8.9)	642 (7.2)	704 (4.5)	792 (7.5)
Slovak Republic	401 (1.6)	483 (0.6)	543 (4.4)	612 (3.9)	700 (2.7)
Slovenia	404 (2.5)	477 (3.6)	535 (6.7)	604 (4.0)	690 (4.3)
South Africa	259 (3.7)	313 (2.2)	347 (2.0)	386 (4.9)	484 (10.4)
Spain	376 (2.0)	436 (2.5)	481 (1.8)	536 (3.5)	616 (3.9)
Sweden	384 (2.9)	460 (6.0)	515 (3.7)	579 (3.4)	661 (4.7)
Switzerland	401 (6.3)	485 (2.1)	549 (6.1)	607 (2.9)	685 (2.8)
Thailand	388 (3.7)	462 (4.4)	518 (5.9)	580 (6.8)	669 (12.0)
United States	356 (3.3)	435 (3.4)	494 (6.4)	563 (8.2)	653 (3.7)

*Eighth grade in most countries; see Table 2 for more information about the grades tested in each country.

() Standard errors appear in parentheses.

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

Table E.2**Percentiles of Achievement in Mathematics
Lower Grade (Seventh Grade*)**

Country	5th Percentile	25th Percentile	50th Percentile	75th Percentile	95th Percentile
Australia	350 (4.4)	435 (5.5)	495 (3.9)	564 (5.9)	651 (6.8)
Austria	378 (2.4)	450 (6.3)	506 (3.5)	568 (4.5)	652 (4.5)
Belgium (Fl)	436 (2.0)	506 (4.4)	556 (4.4)	608 (7.0)	688 (3.1)
Belgium (Fr)	382 (5.0)	456 (6.0)	506 (6.2)	562 (5.5)	640 (3.2)
Bulgaria	355 (8.1)	435 (4.9)	511 (11.0)	589 (7.2)	691 (15.6)
Canada	368 (2.0)	440 (5.0)	488 (1.9)	551 (3.2)	632 (5.9)
Colombia	273 (4.3)	329 (2.5)	362 (2.5)	404 (5.4)	476 (6.6)
Cyprus	320 (7.0)	386 (2.5)	440 (2.5)	504 (3.2)	585 (5.9)
Czech Republic	390 (1.9)	461 (6.1)	515 (5.7)	583 (8.2)	678 (4.9)
Denmark	342 (3.9)	412 (1.7)	464 (3.4)	516 (3.6)	595 (23.0)
England	342 (5.4)	410 (7.4)	469 (5.0)	540 (5.2)	639 (6.3)
France	375 (7.2)	444 (6.3)	491 (3.5)	543 (7.5)	615 (5.1)
Germany	353 (6.5)	426 (5.8)	481 (5.2)	542 (6.7)	629 (7.8)
Greece	308 (3.9)	380 (5.9)	434 (3.9)	499 (8.7)	586 (3.0)
Hong Kong	392 (12.5)	503 (7.5)	569 (10.4)	634 (6.9)	716 (5.3)
Hungary	365 (6.9)	437 (6.6)	496 (4.6)	562 (6.7)	656 (8.2)
Iceland	353 (2.4)	416 (3.0)	457 (2.2)	504 (4.1)	577 (6.6)
Iran, Islamic Rep.	316 (1.4)	363 (3.9)	396 (2.2)	436 (4.1)	503 (8.3)
Ireland	361 (4.0)	442 (3.3)	498 (6.8)	560 (7.1)	648 (11.3)
Japan	413 (7.1)	508 (2.2)	568 (1.9)	635 (3.0)	734 (7.0)
Korea	401 (7.6)	508 (5.2)	583 (5.9)	649 (3.7)	744 (2.3)
Latvia (LSS)	345 (5.0)	409 (4.4)	455 (2.4)	510 (3.2)	598 (4.6)
Lithuania	309 (4.0)	380 (3.5)	423 (4.3)	477 (2.9)	559 (5.4)
Netherlands	388 (8.5)	466 (3.2)	519 (8.0)	569 (3.7)	646 (6.9)
New Zealand	337 (6.4)	412 (5.4)	468 (3.2)	530 (9.0)	620 (2.5)
Norway	335 (5.3)	407 (6.0)	460 (4.4)	513 (4.0)	592 (9.8)
Portugal	332 (1.3)	385 (0.8)	417 (2.7)	461 (4.5)	528 (4.2)
Romania	325 (4.6)	394 (5.2)	449 (3.2)	513 (8.8)	600 (2.4)
Russian Federation	363 (5.5)	440 (6.7)	496 (3.9)	563 (5.6)	651 (3.9)
Scotland	337 (1.2)	405 (4.7)	459 (3.7)	520 (6.1)	604 (1.5)
Singapore	447 (8.0)	538 (9.7)	604 (12.1)	665 (6.4)	751 (6.0)
Slovak Republic	376 (3.2)	449 (4.2)	504 (4.4)	569 (3.1)	650 (9.4)
Slovenia	373 (3.8)	442 (5.7)	493 (3.0)	553 (4.6)	643 (3.8)
South Africa	254 (3.6)	308 (0.7)	342 (3.2)	382 (3.3)	462 (17.0)
Spain	342 (4.4)	400 (1.9)	441 (2.0)	494 (4.2)	572 (3.1)
Sweden	355 (3.6)	425 (2.0)	475 (2.0)	527 (2.9)	609 (8.9)
Switzerland	387 (12.4)	454 (3.3)	502 (3.0)	558 (3.0)	628 (4.0)
Thailand	373 (3.8)	440 (4.5)	490 (5.2)	547 (7.1)	632 (9.1)
United States	345 (8.0)	411 (3.1)	465 (3.2)	536 (11.7)	635 (12.1)

*Seventh grade in most countries; see Table 2 for more information about the grades tested in each country.

() Standard errors appear in parentheses.

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

Table E.3

**Standard Deviations of Achievement in Mathematics
Upper Grade (Eighth Grade*)**

Country	Overall		Boys		Girls	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Australia	530 (4.0)	98	527 (5.1)	100	532 (4.6)	96
Austria	539 (3.0)	92	544 (3.2)	94	536 (4.5)	90
Belgium (Fl)	565 (5.7)	92	563 (8.8)	96	567 (7.4)	88
Belgium (Fr)	526 (3.4)	86	530 (4.7)	88	524 (3.7)	83
Bulgaria	540 (6.3)	110	--	--	--	--
Canada	527 (2.4)	86	526 (3.2)	88	530 (2.7)	84
Colombia	385 (3.4)	64	386 (6.9)	66	384 (3.6)	63
Cyprus	474 (1.9)	88	472 (2.8)	89	475 (2.5)	86
Czech Republic	564 (4.9)	94	569 (4.5)	94	558 (6.3)	93
Denmark	502 (2.8)	84	511 (3.2)	86	494 (3.4)	80
England	506 (2.6)	93	508 (5.1)	95	504 (3.5)	91
France	538 (2.9)	76	542 (3.1)	74	536 (3.8)	78
Germany	509 (4.5)	90	512 (5.1)	89	509 (5.0)	88
Greece	484 (3.1)	88	490 (3.7)	91	478 (3.1)	85
Hong Kong	588 (6.5)	101	597 (7.7)	103	577 (7.7)	97
Hungary	537 (3.2)	93	537 (3.6)	92	537 (3.6)	94
Iceland	487 (4.5)	76	488 (5.5)	80	486 (5.6)	72
Iran, Islamic Rep.	428 (2.2)	59	434 (2.9)	59	421 (3.3)	59
Ireland	527 (5.1)	93	535 (7.2)	96	520 (6.0)	89
Israel	522 (6.2)	92	539 (6.6)	89	509 (6.9)	90
Japan	605 (1.9)	102	609 (2.6)	106	600 (2.1)	97
Korea	607 (2.4)	109	615 (3.2)	109	598 (3.4)	108
Kuwait	392 (2.5)	58	--	--	--	--
Latvia (LSS)	493 (3.1)	82	496 (3.8)	82	491 (3.5)	82
Lithuania	477 (3.5)	80	477 (4.0)	79	478 (4.1)	81
Netherlands	541 (6.7)	89	545 (7.8)	90	536 (6.4)	88
New Zealand	508 (4.5)	90	512 (5.9)	92	503 (5.3)	88
Norway	503 (2.2)	84	505 (2.8)	87	501 (2.7)	80
Portugal	454 (2.5)	64	460 (2.8)	64	449 (2.7)	64
Romania	482 (4.0)	89	483 (4.8)	91	480 (4.0)	87
Russian Federation	535 (5.3)	92	535 (6.3)	97	536 (5.0)	87
Scotland	498 (5.5)	87	506 (6.6)	89	490 (5.2)	85
Singapore	643 (4.9)	88	642 (6.3)	88	645 (5.4)	88
Slovak Republic	547 (3.3)	92	549 (3.7)	94	545 (3.6)	90
Slovenia	541 (3.1)	88	545 (3.8)	88	537 (3.3)	87
South Africa	354 (4.4)	65	360 (6.3)	68	349 (4.1)	62
Spain	487 (2.0)	73	492 (2.5)	75	483 (2.6)	72
Sweden	519 (3.0)	85	520 (3.6)	85	518 (3.1)	86
Switzerland	545 (2.8)	88	548 (3.5)	90	543 (3.1)	85
Thailand	522 (5.7)	86	517 (5.6)	84	526 (7.0)	87
United States	500 (4.6)	91	502 (5.2)	93	497 (4.5)	89

*Eighth grade in most countries; see Table 2 for information about the grades tested in each country.

A dash (–) indicates data are not available.

() Standard errors appear in parentheses.

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

Table E.4

Standard Deviations of Achievement in Mathematics Lower Grade (Seventh Grade*)

Country	Overall		Boys		Girls	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
Australia	498 (3.8)	92	495 (5.2)	94	500 (4.3)	90
Austria	509 (3.0)	85	510 (4.6)	89	509 (3.3)	81
Belgium (Fl)	558 (3.5)	77	557 (4.5)	76	559 (4.7)	78
Belgium (Fr)	507 (3.5)	78	514 (4.1)	79	501 (4.2)	76
Bulgaria	514 (7.5)	103	– –	–	– –	–
Canada	494 (2.2)	80	495 (2.7)	80	493 (2.6)	80
Colombia	369 (2.7)	63	372 (3.8)	62	365 (3.9)	63
Cyprus	446 (1.9)	82	446 (2.5)	86	446 (2.6)	78
Czech Republic	523 (4.9)	89	527 (4.8)	90	520 (5.6)	88
Denmark	465 (2.1)	78	468 (2.8)	79	462 (2.9)	76
England	476 (3.7)	90	484 (6.2)	91	467 (4.3)	88
France	492 (3.1)	74	497 (3.6)	75	489 (3.3)	72
Germany	484 (4.1)	85	486 (4.8)	86	484 (4.5)	83
Greece	440 (2.8)	85	440 (3.2)	88	440 (3.0)	83
Hong Kong	564 (7.8)	99	570 (9.7)	103	556 (8.3)	94
Hungary	502 (3.7)	91	503 (3.8)	93	501 (4.4)	88
Iceland	459 (2.6)	68	460 (2.7)	68	458 (3.2)	68
Iran, Islamic Rep.	401 (2.0)	57	407 (2.7)	57	393 (2.3)	55
Ireland	500 (4.1)	87	507 (6.0)	87	494 (4.8)	86
Israel	– –	–	– –	–	– –	–
Japan	571 (1.9)	96	576 (2.7)	100	565 (2.0)	91
Korea	577 (2.5)	105	584 (3.7)	104	567 (4.4)	104
Kuwait	– –	–	– –	–	– –	–
Latvia (LSS)	462 (2.8)	77	463 (3.5)	77	460 (3.3)	76
Lithuania	428 (3.2)	75	423 (3.6)	77	433 (3.5)	73
Netherlands	516 (4.1)	79	517 (5.2)	80	515 (4.3)	77
New Zealand	472 (3.8)	87	473 (4.6)	89	470 (3.8)	84
Norway	461 (2.8)	76	462 (3.3)	77	459 (3.2)	75
Portugal	423 (2.2)	60	426 (2.7)	61	420 (2.2)	59
Romania	454 (3.4)	84	457 (3.7)	84	452 (3.7)	84
Russian Federation	501 (4.0)	88	502 (5.1)	91	499 (3.5)	85
Scotland	463 (3.7)	82	465 (4.6)	84	462 (3.8)	79
Singapore	601 (6.3)	93	601 (7.1)	94	601 (8.0)	92
Slovak Republic	508 (3.4)	85	511 (4.4)	87	505 (3.3)	83
Slovenia	498 (3.0)	82	501 (3.5)	82	496 (3.2)	82
South Africa	348 (3.8)	63	352 (5.3)	67	344 (3.3)	60
Spain	448 (2.2)	70	451 (2.7)	72	445 (2.7)	67
Sweden	477 (2.5)	77	480 (2.8)	77	475 (3.2)	76
Switzerland	506 (2.3)	75	513 (2.9)	76	498 (2.6)	74
Thailand	495 (4.8)	79	494 (4.8)	78	495 (5.7)	79
United States	476 (5.5)	89	478 (5.7)	92	473 (5.7)	86

*Seventh grade in most countries; see Table 2 for information about the grades tested in each country.

A dash (–) indicates data are not available. Israel and Kuwait did not test the lower grade.

() Standard errors appear in parentheses.

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1994-95.

