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IRI Spring 2019 Percentile Ranks and Normal Curve Equivalents

Idaho Reading Indicator
(IRI by iStation)

Scale Score (SS) to Percentile Rank (PR) and
Normal Curve Equivalent (NCE)
Conversion Tables

Spring 2019

Grades K, 1, 2 and 3

Prepared by

K-12 Research Idaho

– a personal public service project – for
educators, students, parents and patrons of

Idaho's Neighborhood Schools

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IRI Spring 2019 Percentile Ranks and Normal Curve Equivalents

Percentile Rank. A percentile rank tells the percentage of scores in a distribution that are lower than a particular “target score.” For example, a score of 200 on the 1st grade reading test has a percentile rank of 54. This tells us that 200 was higher than 54 percent of the scale scores in the distribution. This definition holds both for an individual student’s score and for a group’s average score (e.g., classroom, school, or district).

Percentile Rank Descriptors. Test publishers have long used common language descriptors like those displayed in the table to describe percentile ranks in order to promote understanding, use and discussion of percentile rank data:

Percentile Rank	Common Descriptor
96-99	Very High
89-95	High
77-88	Above Average
60-76	High Average
41-59	Average for Grade Level
24-40	Low Average
12-23	Below Average
5-11	Low
1-4	Very Low

Individual Student Score, Spring 2019

John has a score of 226 on the first grade test. The Grade 1 conversion table shows that John has a percentile rank of 56. This percentile rank tells us that John scored higher than 56 percent of Idaho’s first grade students who took the Spring 2019 test. John’s performance may be described as “average for grade level.”

Group Average Score, Spring 2019

A third grade class has an average score of 261 on the Spring 2019 test. The Grade 3 conversion table shows that the class has a percentile rank of 64. This percentile rank tells us that the “average student” in the class scored higher than 64 percent of Idaho’s third graders in Spring 2019. The class performance may be described as “high average”

- The State Department of Education provided Idaho statewide scale score results from the Spring 2019 IRI assessment that were used to calculate the percentile ranks and normal curve equivalents in this document, namely the number of students with valid scores, state mean, and state standard deviation for each grade level tested (i.e., grades K-3).
- Each percentile rank (PR) from 1 to 99 was calculated $PR_n = (\text{state standard deviation} \times Z\text{-score}_n) + \text{state mean}$
- Each normal curve equivalent (NCE) from 1 to 99 was calculated $NCE_n = (21.06 \times Z\text{-score}_n) + 50$
- Z-scores were retrieved from a *Proportions of Area under the Normal Curve* table, typically the first table in an Appendix of Tables of statistics textbooks.

Caution. *Since percentile ranks are not an equal interval scale, they cannot be averaged using ordinary arithmetic, nor can they be graphed as an equal interval scale such as Excel provides. There are, however, statistical techniques using NCEs that can be used to find a composite percentile rank and “tricks” that can make Excel appear to graph percentile ranks.*

Idaho Reading Indicator (IRI iStation)

Idaho Reading Indicator (IRI by iStation), Grade K, Spring 2019 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	238 & Above	99.0
98	234 - 237	93.3
97	232 - 233	89.6
96	230 - 231	86.9
95	229	84.6
94	227 - 228	82.7
93	226	81.1
92	225	79.6
91	224	78.2
90	223	77.0
89	222	75.8
88		74.7
87	221	73.7
86	220	72.8
85		71.8
84	219	70.9
83	218	70.1
82		69.3
81	217	68.5
80		67.7
79	216	67.0
78		66.3
77	215	65.6
76		64.9
75	214	64.2
74		63.5
73	213	62.9
72		62.3
71		61.7
70	212	61.0
69		60.4
68	211	59.8
67		59.3
66		58.7
65	210	58.1
64		57.6
63	209	57.0
62		56.4
61		55.9
60	208	55.3
59		54.8
58	207	54.3
57		53.7
56		53.2
55	206	52.6
54		52.1
53		51.6
52	205	51.1
51		50.5

PR	Scale Score	NCE
50	204	50.0
49		49.5
48		48.9
47	203	48.4
46		47.9
45		47.4
44	202	46.8
43		46.3
42		45.7
41	201	45.2
40		44.7
39	200	44.1
38		43.6
37		43.0
36	199	42.4
35		41.9
34	198	41.3
33		40.7
32		40.2
31	197	39.6
30		39.0
29	196	38.3
28		37.7
27		37.1
26	195	36.5
25		35.8
24	194	35.1
23		34.4
22	193	33.7
21		33.0
20	192	32.3
19		31.5
18	191	30.7
17		29.9
16	190	29.1
15	189	28.2
14		27.2
13	188	26.3
12	187	25.3
11		24.2
10	186	23.0
9	185	21.8
8	184	20.4
7	183	18.9
6	182	17.3
5	180 - 181	15.4
4	179	13.1
3	177 - 178	10.4
2	174 - 176	6.7
1	Up to 173	1.0

Idaho Reading Indicator (IRI iStation)

Idaho Reading Indicator (IRI by iStation), Grade 1, Spring 2019 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	262 & Above	99.0
98	258 - 261	93.3
97	255 - 257	89.6
96	253 - 254	86.9
95	251 - 252	84.6
94	250	82.7
93	248 - 249	81.1
92	247	79.6
91	246	78.2
90	245	77.0
89	244	75.8
88	243	74.7
87		73.7
86	242	72.8
85	241	71.8
84	240	70.9
83		70.1
82	239	69.3
81	238	68.5
80		67.7
79	237	67.0
78		66.3
77	236	65.6
76		64.9
75	235	64.2
74		63.5
73	234	62.9
72		62.3
71	233	61.7
70		61.0
69	231	60.4
68		59.8
67	231	59.3
66		58.7
65	230	58.1
64		57.6
63	229	57.0
62		56.4
61	228	55.9
60		55.3
59		54.8
58	227	54.3
57		53.7
56	226	53.2
55		52.6
54		52.1
53	225	51.6
52		51.1
51	224	50.5

PR	Scale	NCE
50		50.0
49	223	49.5
48		48.9
47		48.4
46	222	47.9
45		47.4
44	221	46.8
43		46.3
42		45.7
41	220	45.2
40		44.7
39	219	44.1
38		43.6
37	218	43.0
36		42.4
35	217	41.9
34		41.3
33		40.7
32	216	40.2
31		39.6
30	215	39.0
29		38.3
28	214	37.7
27		37.1
26	213	36.5
25		35.8
24	212	35.1
23		34.4
22	211	33.7
21	210	33.0
20		32.3
19	209	31.5
18		30.7
17	208	29.9
16	207	29.1
15		28.2
14	206	27.2
13	205	26.3
12	204	25.3
11		24.2
10	203	23.0
9	202	21.8
8	201	20.4
7	199 - 200	18.9
6	198	17.3
5	197	15.4
4	195 - 196	13.1
3	193 - 194	10.4
2	190 - 192	6.7
1	Up to 189	1.0

Idaho Reading Indicator (IRI iStation)

Idaho Reading Indicator (IRI by iStation), Grade 2, Spring 2019 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	285 & Above	99.0
98	280 - 284	93.3
97	277 - 279	89.6
96	274 - 276	86.9
95	272 - 273	84.6
94	271	82.7
93	269 - 270	81.1
92	268	79.6
91	267	78.2
90	266	77.0
89	264 - 265	75.8
88	263	74.7
87		73.7
86	262	72.8
85	261	71.8
84	260	70.9
83	259	70.1
82		69.3
81	258	68.5
80	257	67.7
79		67.0
78	256	66.3
77	255	65.6
76		64.9
75	254	64.2
74	253	63.5
73		62.9
72	252	62.3
71		61.7
70	251	61.0
69		60.4
68	250	59.8
67		59.3
66	249	58.7
65		58.1
64	248	57.6
63		57.0
62	247	56.4
61		55.9
60	246	55.3
59		54.8
58	245	54.3
57		53.7
56	244	53.2
55		52.6
54	243	52.1
53		51.6
52	242	51.1
51		50.5

PR	Scale Score	NCE
50	241	50.0
49		49.5
48	240	48.9
47		48.4
46	239	47.9
45		47.4
44	238	46.8
43		46.3
42	237	45.7
41		45.2
40	236	44.7
39		44.1
38	235	43.6
37		43.0
36	234	42.4
35		41.9
34	233	41.3
33		40.7
32	232	40.2
31		39.6
30	231	39.0
29		38.3
28	230	37.7
27		37.1
26	229	36.5
25	228	35.8
24		35.1
23	227	34.4
22		33.7
21	226	33.0
20	225	32.3
19		31.5
18	224	30.7
17	223	29.9
16	222	29.1
15		28.2
14	221	27.2
13	220	26.3
12	219	25.3
11	218	24.2
10	217	23.0
9	216	21.8
8	215	20.4
7	213 - 214	18.9
6	212	17.3
5	210 - 211	15.4
4	208 - 209	13.1
3	206 - 207	10.4
2	202 - 205	6.7
1	Up to 201	1.0

Idaho Reading Indicator (IRI iStation)

Idaho Reading Indicator (IRI by iStation), Grade 3, Spring 2019 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	303 & Above	99.0
98	297 - 302	93.3
97	293 - 296	89.6
96	291 - 292	86.9
95	289 - 290	84.6
94	287 - 288	82.7
93	285 - 286	81.1
92	283 - 284	79.6
91	282	78.2
90	281	77.0
89	280	75.8
88	279	74.7
87	278	73.7
86	277	72.8
85	276	71.8
84	275	70.9
83	274	70.1
82	273	69.3
81	272	68.5
80		67.7
79	271	67.0
78	270	66.3
77	269	65.6
76		64.9
75	268	64.2
74	267	63.5
73		62.9
72	266	62.3
71	265	61.7
70		61.0
69	264	60.4
68		59.8
67	263	59.3
66	262	58.7
65		58.1
64	261	57.6
63		57.0
62	260	56.4
61		55.9
60	259	55.3
59		54.8
58	258	54.3
57		53.7
56	257	53.2
55	256	52.6
54		52.1
53	255	51.6
52		51.1
51	254	50.5

PR	Scale Score	NCE
50		50.0
49	253	49.5
48		48.9
47	252	48.4
46		47.9
45	251	47.4
44		46.8
43	250	46.3
42		45.7
41	249	45.2
40	248	44.7
39		44.1
38	247	43.6
37		43.0
36	246	42.4
35		41.9
34	245	41.3
33	244	40.7
32		40.2
31	243	39.6
30		39.0
29	242	38.3
28	241	37.7
27		37.1
26	240	36.5
25		35.8
24	239	35.1
23	238	34.4
22	237	33.7
21		33.0
20	236	32.3
19	235	31.5
18	234	30.7
17		29.9
16	233	29.1
15	232	28.2
14	231	27.2
13	230	26.3
12	229	25.3
11	228	24.2
10	227	23.0
9	225 - 226	21.8
8	224	20.4
7	223	18.9
6	221 - 222	17.3
5	219 - 220	15.4
4	217 - 218	13.1
3	214 - 216	10.4
2	210 - 213	6.7
1	Up to 209	1.0