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IRI Fall 2018 Percentile Ranks and Normal Curve Equivalents

Idaho Reading Indicator
(IRI by iStation)

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

Fall 2018

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 Fall 2018 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, Fall 2018

John has a score of 200 on the first grade test. The Grade 1 conversion table shows that John has a percentile rank of 54. This percentile rank tells us that John scored higher than 54 percent of Idaho’s first grade students who took the Fall 2018 test. John’s performance may be described as “average for grade level.”

Group Average Score, Fall 2018

The first grade class has an average score of 203 on the Fall 2018 test. The Grade 1 conversion table shows that the class has a percentile rank of 63. This percentile rank tells us that the “average student” in the class scored higher than 63 percent of Idaho’s first graders who were tested in Fall 2018. The class performance may be described as “high average”

- ◆ The State Department of Education provided Idaho statewide scale score results from the Fall 2018 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, which is usually the first table in the Appendix of Tables of most 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, Fall 2018 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	207 & Above	99.0
98	204 - 206	93.3
97	203	89.6
96	201 - 202	86.9
95	200	84.6
94	199	82.7
93	198	81.1
92	197	79.6
91	196	78.2
90	195	77.0
89	194	75.8
88		74.7
87	193	73.7
86	192	72.8
85		71.8
84	191	70.9
83		70.1
82	190	69.3
81		68.5
80	189	67.7
79		67.0
78	188	66.3
77		65.6
76	187	64.9
75		64.2
74	186	63.5
73		62.9
72		62.3
71	185	61.7
70		61.0
69	184	60.4
68		59.8
67		59.3
66	183	58.7
65		58.1
64	182	57.6
63		57.0
62		56.4
61	181	55.9
60		55.3
59		54.8
58	180	54.3
57		53.7
56		53.2
55	179	52.6
54		52.1
53		51.6
52	178	51.1
51		50.5

PR	Scale Score	NCE
50		50.0
49	177	49.5
48		48.9
47		48.4
46	176	47.9
45		47.4
44	175	46.8
43		46.3
42		45.7
41	174	45.2
40		44.7
39		44.1
38	173	43.6
37		43.0
36		42.4
35	172	41.9
34		41.3
33		40.7
32	171	40.2
31		39.6
30	170	39.0
29		38.3
28		37.7
27	169	37.1
26		36.5
25	168	35.8
24		35.1
23	167	34.4
22		33.7
21		33.0
20	166	32.3
19		31.5
18	165	30.7
17	164	29.9
16		29.1
15	163	28.2
14		27.2
13	162	26.3
12	161	25.3
11		24.2
10	160	23.0
9	159	21.8
8	158	20.4
7	157	18.9
6	156	17.3
5	155	15.4
4	153 - 154	13.1
3	149 - 152	10.4
2		6.7
1	Up to 148	1.0

Idaho Reading Indicator (IRI iStation)

Idaho Reading Indicator (IRI by iStation), Grade 1, Fall 2018 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	227 & Above	99.0
98	225 - 226	93.3
97	223 - 224	89.6
96	222	86.9
95	221	84.6
94	220	82.7
93	219	81.1
92	218	79.6
91	217	78.2
90	216	77.0
89	215	75.8
88		74.7
87	214	73.7
86	213	72.8
85		71.8
84	212	70.9
83		70.1
82	211	69.3
81		68.5
80	210	67.7
79		67.0
78	209	66.3
77		65.6
76	208	64.9
75		64.2
74	207	63.5
73		62.9
72		62.3
71	206	61.7
70		61.0
69		60.4
68	205	59.8
67		59.3
66	204	58.7
65		58.1
64		57.6
63	203	57.0
62		56.4
61		55.9
60	202	55.3
59		54.8
58		54.3
57	201	53.7
56		53.2
55		52.6
54	200	52.1
53		51.6
52		51.1
51	199	50.5

PR	Scale	NCE
50		50.0
49		49.5
48	198	48.9
47		48.4
46		47.9
45	197	47.4
44		46.8
43		46.3
42	196	45.7
41		45.2
40		44.7
39	195	44.1
38		43.6
37		43.0
36	194	42.4
35		41.9
34	193	41.3
33		40.7
32		40.2
31	192	39.6
30		39.0
29		38.3
28	191	37.7
27		37.1
26	190	36.5
25		35.8
24		35.1
23	189	34.4
22		33.7
21	188	33.0
20		32.3
19	187	31.5
18		30.7
17	186	29.9
16		29.1
15	185	28.2
14		27.2
13	184	26.3
12	183	25.3
11		24.2
10	182	23.0
9	181	21.8
8	180	20.4
7	179	18.9
6	178	17.3
5	177	15.4
4	175 - 176	13.1
3	173 - 174	10.4
2	172	6.7
1	Up to 171	1.0

Idaho Reading Indicator (IRI iStation)

Idaho Reading Indicator (IRI by iStation), Grade 2, Fall 2018 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	256 & Above	99.0
98	253 - 255	93.3
97	251 - 252	89.6
96	250	86.9
95	248 - 249	84.6
94	247	82.7
93	246	81.1
92	245	79.6
91	244	78.2
90	243	77.0
89	242	75.8
88	241	74.7
87	240	73.7
86	239	72.8
85		71.8
84	238	70.9
83	237	70.1
82		69.3
81	236	68.5
80	235	67.7
79		67.0
78	234	66.3
77		65.6
76	233	64.9
75		64.2
74	232	63.5
73		62.9
72	231	62.3
71		61.7
70	230	61.0
69		60.4
68	229	59.8
67		59.3
66		58.7
65	228	58.1
64		57.6
63	227	57.0
62		56.4
61	226	55.9
60		55.3
59		54.8
58	225	54.3
57		53.7
56	224	53.2
55		52.6
54	223	52.1
53		51.6
52		51.1
51	222	50.5

PR	Scale Score	NCE
50		50.0
49	221	49.5
48		48.9
47		48.4
46	220	47.9
45		47.4
44	219	46.8
43		46.3
42		45.7
41	218	45.2
40		44.7
39	217	44.1
38		43.6
37	216	43.0
36		42.4
35		41.9
34	215	41.3
33		40.7
32	214	40.2
31		39.6
30	213	39.0
29		38.3
28	212	37.7
27		37.1
26	211	36.5
25		35.8
24	210	35.1
23		34.4
22	209	33.7
21		33.0
20	208	32.3
19		31.5
18	207	30.7
17	206	29.9
16		29.1
15	205	28.2
14	204	27.2
13		26.3
12	203	25.3
11	202	24.2
10	201	23.0
9	200	21.8
8	199	20.4
7	198	18.9
6	196 - 197	17.3
5	194 - 195	15.4
4	192 - 193	13.1
3	190 - 191	10.4
2	189	6.7
1	Up to 188	1.0

Idaho Reading Indicator (IRI iStation)

Idaho Reading Indicator (IRI by iStation), Grade 3, Fall 2018 State Percentile Rank, Scale Score, Normal Curve Equivalent

PR	Scale Score	NCE
99	274 & Above	99.0
98	271 - 273	93.3
97	269 - 270	89.6
96	267 - 268	86.9
95	265 - 266	84.6
94	264	82.7
93	263	81.1
92	262	79.6
91	261	78.2
90	260	77.0
89	259	75.8
88	258	74.7
87	257	73.7
86	256	72.8
85	255	71.8
84		70.9
83	254	70.1
82	253	69.3
81		68.5
80	252	67.7
79	251	67.0
78		66.3
77	250	65.6
76		64.9
75	249	64.2
74		63.5
73	248	62.9
72		62.3
71	247	61.7
70		61.0
69	246	60.4
68		59.8
67	245	59.3
66		58.7
65	244	58.1
64		57.6
63	243	57.0
62		56.4
61	242	55.9
60		55.3
59	241	54.8
58		54.3
57		53.7
56	240	53.2
55		52.6
54	239	52.1
53		51.6
52	238	51.1
51		50.5

PR	Scale Score	NCE
50	237	50.0
49		49.5
48		48.9
47	236	48.4
46		47.9
45	235	47.4
44		46.8
43	234	46.3
42		45.7
41		45.2
40	233	44.7
39		44.1
38	232	43.6
37		43.0
36	231	42.4
35		41.9
34	230	41.3
33		40.7
32	229	40.2
31		39.6
30	228	39.0
29		38.3
28	227	37.7
27		37.1
26	226	36.5
25		35.8
24	225	35.1
23		34.4
22	224	33.7
21	223	33.0
20		32.3
19	222	31.5
18		30.7
17	221	29.9
16	220	29.1
15		28.2
14	219	27.2
13	218	26.3
12	217	25.3
11	216	24.2
10	215	23.0
9	214	21.8
8	213	20.4
7	212	18.9
6	210 - 211	17.3
5	208 - 209	15.4
4	206 - 207	13.1
3	203 - 205	10.4
2	202	6.7
1	Up to 201	1.0