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Current Comments

Journal Citation Studies. 36. Pure and Applied Mathematics Journals: What They Cite and Vice Versa

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When we present studies of highly cited articles in the life and physical sciences, it is important to reiterate that some fields are consistently underrepresented—astronomy and mathematics, for example.[1,2] You might assume that the "obvious" reason for this is that the number of mathematicians is smaller than, say, the number of biochemists. Or you might think it is because the literature of biochemistry is larger than that of mathematics. But I pointed out in a detailed study of biochemistry journals that the reasons are not so obvious.[3]

One important reason why the average biochemist is cited more than the average mathematician is because the average biochemistry paper contains nearly three times as many references as the average math paper. Furthermore, while the size of the literature does not affect the average impact of the individual paper, it does affect the range of citation frequencies. If one body of literature is ten times that of another, its chances for producing "superstar" papers are greatly increased. An important method in biochemistry can be cited in thousands of life sciences papers per year. In pure mathematics, however, the most-cited paper never reaches this figure because there are only about 40,000 papers published per year, depending on how you define mathematics. Of course, in applied mathematics or statistics there is the occasional paper or book that is highly cited by the literature of other fields. But this is rare in pure mathematics.

In order to overcome the problem of inadequate representation of small fields, I have from time to time focused attention on a selected portion of our data base. For example, in 1973 we studied the most-cited math articles and books.[4,5] But I've never done a separate and comprehensive report on mathematics journals—what they cite and what cites them. This seemed long overdue, especially as we are launching a new data base in mathematics called *ISI/CompuMath*™.[6]

The data on which this study is based are taken from the 1980 *Journal Citation Reports*® (*JCR*™), the fourteenth and final volume of that year's *Science Citation Index*® (*SCI*®) annual. Table 1 lists 97 journals classified under pure and applied mathematics in the 1980 *SCI*. This "core" group of math journals will be considered as a single entity in this study. Thus, we can more easily identify which journals are most frequently cited *by* the core math group. Also, we can determine which journals most frequently *cited* the core math journals in 1980.

It's obvious from the titles listed in Table 1 that many of the math journals are foreign language publications. While almost half of them publish exclusively in English (41), 54 are multilingual journals publishing in English, French, German, and (less frequently) Russian or Italian. Two journals publish exclusively in French—*Bulletin des Sciences Mathematiques* and *Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences Serie A—Sciences Mathematiques. Mathematical Notes, Mathematics of the USSR—Izvestiya, Mathematics of the USSR—Sbornik*, and the *Siberian Mathematical Journal* are

English translations of Russian language journals—respectively, *Matematicheskii Zametki, Izvestiya Matematicheskaya Seriya, Matematicheskii Sbornik,* and *Sibirskii Matematicheskii Zhurnal.* Citation data on the Russian and English language editions of these journals were combined in this study.

The 97 core math journals listed in Table 1 published 6,940 source items in 1980. This amounts to 2.0 percent of the 347,707 source items included in the 1980 *JCR* data base. The 1980 *SCI* covered more than 500,000 published papers, but many of these items are short letters, editorials, and meeting abstracts that are *not* included in *JCR*. The math articles cited 73,028 references, or 1.1 percent of the 6,824,219 references processed for the 1980 *JCR*. The math journals averaged 10.5 references per source item (R/S) in 1980. In comparison, the average for biochemistry that year was 28.5. The R/S average for all items in *JCR* was 19.6 in 1980.

Articles published in the core math journals received 38,859 citations from *all* journals in 1980. This represents .7 percent of the 5,348,444 citations processed in the 1980 *JCR*. Just nine journals account for one-third of these 38,859 citations: *American Journal of Mathematics* (1,059), *Annals of Mathematics* (2,140), *Bulletin of the American Mathematical Society* (1,048), *Journal of Mathematical Analysis and Applications* (1,062), *Mathematische Annalen* (1,283), *Mathematische Zeitschrift* (1,104), *Proceedings of the American Mathematical Society* (1,571), *Pacific Journal of Mathematics* (1,049), and *Transactions of the American Mathematical Society* (2,409). This is quite different from fields like veterinary science,[7] where a smaller number of journals account for a larger percentage of total citations.

In Table 2, we've listed the 50 journals that were most cited *by* the core journals in 1980, ranked according to the number of citations from the *math* journals. These 50 journals received 27,863 citations, or 38.1 percent of the 73,028 references given out by the math core in 1980. Forty-one of the 50 most-cited journals are themselves members of the core group. The nine *non*-core journals listed in Table 2 are: *Annales de l'Institut Fourier, Archive for Rational Mechanics and Analysis, Doklady Akademiya Nauk SSSR, Fundamenta Mathematicae, Journal of Mathematical Physics, Lecture Notes in Pure and Applied Mathematics, Proceedings of Symposia in Pure Mathematics, Proceedings of the Cambridge Philosophical Society,* and *Proceedings of the National Academy of Sciences of the USA.* In comparison to *Proceedings of the National Academy of Sciences of the USA, Doklady* is much more oriented toward mathematics.

In Table 3, the 50 journals which most *cited* the math core are listed, in order of the number of references to the core. These journals account for 62.4 percent of all the citations received by the core math journals in 1980. Only three journals listed in Table 3 are *not* core journals. They are: *Doklady Akademiya Nauk SSSR, IEEE Transactions on Automatic Control,* and *Journal of Mathematical Physics.*

Comparing Tables 2 and 3, we see that 34 of the journals appear in *both* tables (indicated by asterisks). Six journals appear among the top ten in both lists: *Journal of Algebra, Mathematische Annalen, Mathematische Zeitschrift, Pacific Journal of Mathematics,* and the American Mathematical Society's *Transactions* and *Proceedings.* Thus, these six journals rank highest among the 97 core math journals in terms of *both* the number of citations received *from* the core and the number of their references *to* the core.

Another important indicator of a journal's quality is its *impact* factor—that is, the number of times an average article in a particular journal is cited. In the 1980 *JCR,* impact is calculated by dividing the number of 1980 citations to articles published in 1978 and 1979 by the number of source items it published in 1978 and 1979. As you can see, we require data covering three years in order to calculate impact factors. Since 12 of the 97 core math journals were only added to the

Table 1: Core mathematics journals (pure and applied) indexed in *SCI*®, 1980, including the date that each began publication.

Acta Mathematica Academiae Scientiarum Hungaricae—1950
Acta Mathematica—*Djursholm*—1882
Acta Scientiarum Mathematicarum—1922
Advances in Mathematics—1967
American Journal of Mathematics—1878
American Mathematical Monthly—1894
Annales Scientifiques de l'Ecole Normale Superieure—1864
Annals of Mathematics—1884
Applied Mathematics and Computation—1975
Applied Mathematics and Optimization—1974
Archiv der Mathematik—1948
Arkiv for Matematik—1949
Bulletin de la Societe Mathematique de France—1873
Bulletin des Sciences Mathematiques—1870
Bulletin of the American Mathematical Society—1894
Canadian Journal of Mathematics—1949
Commentarii Mathematici Helvetici—1929
Communications in Algebra—1974
Communications on Pure and Applied Mathematics—1939
Compositio Mathematica—1933
Comptes Rendus Hebdomadaires des Seances de l'Academie des Sciences Serie A—Sciences Mathematiques—1835
Computers and Mathematics with Applications—1975
Discrete Applied Mathematics—1979
Discrete Mathematics—1971
Duke Mathematical Journal—1935
Fibonacci Quarterly—1963
Illinois Journal of Mathematics—1957
Journal of the Institute of Mathematics and Its Applications—1965 (now IMA Journal of Applied Mathematics)
Indian Journal of Pure and Applied Mathematics—1958
Indiana University Mathematics Journal—1952
International Journal of Computer Mathematics—1964
Inventiones Mathematicae—1966
Israel Journal of Mathematics—1951
Journal de Mathematiques Pures et Appliquees—1836
Journal fur die Reine und Angewandte Mathematik—1826
Journal of Algebra—1964
Journal of Approximation Theory—1968
Journal of Combinatorial Theory Series A—1966
Journal of Combinatorial Theory Series B—1971
Journal of Differential Equations—1965
Journal of Functional Analysis—1967
Journal of Graph Theory—1976
Journal of Mathematical Analysis and Applications—1960
Journal of Number Theory—1968
Journal of Optimization Theory and Applications—1967
Journal of Pure and Applied Algebra—1971
Journal of Statistical Computation and Simulation—1972
Journal of Symbolic Logic—1936
Journal of the London Mathematical Society—Second Series—1969
Journal of the Mathematical Society of Japan—1885
Linear Algebra and Its Applications—1968
Manuscripta Mathematica—1969
Mathematica Scandinavica—1953
Mathematical Notes (Matematicheskii Zametki)—1967
Mathematical Proceedings of the Cambridge Philosophical Society—1843
Mathematical Programming—1971
Mathematics of Computation—1943
Mathematics of the USSR—Izvestiya (Izvestiya Matematicheskaya Seriya)—1967
Mathematics of the USSR—Sbornik (Matematicheskii Sbornik)—1968
Mathematika—1954
Mathematische Annalen—1869
Mathematische Nachrichten—1949
Mathematische Zeitschrift—1918
Matrix and Tensor Quarterly—1951
Memoirs of the American Mathematical Society—1950
Michigan Mathematical Journal—1952
Monatshefte fur Mathematik—1890
Nagoya Mathematical Journal—1950
Numerical Functional Analysis and Optimization—1979
Numerische Mathematik—1959
Optimal Control Applications and Methods—1980
Pacific Journal of Mathematics—1951
Proceedings of the American Mathematical Society—1950
Proceedings of the Edinburgh Mathematical Society—1883
Proceedings of the Indian Academy of Sciences—*Mathematical Sciences*—1934
Proceedings of the Japan Academy Series A—Mathematical Sciences—1950
Proceedings of the Koninklijke Nederlandse Akademie van Wetenschappen Series A—Mathematical Sciences—1937
Proceedings of the London Mathematical Society—1865
Proceedings of the Royal Society of Edinburgh Section A—Mathematics—1832
Quarterly Journal of Mathematics—1930
Quarterly of Applied Mathematics—1943
RAIRO Analyse Numerique—Numerical Analysis—1967
Ricerche di Matematica—1952
Semigroup Forum—1970
SIAM Journal on Algebraic and Discrete Methods—1980
SIAM Journal on Applied Mathematics—1953

SIAM Journal on Control and Optimization—1963
SIAM Journal on Mathematical Analysis—1970
SIAM Journal on Numerical Analysis—1964
SIAM Journal on Scientific and Statistical Computing—1980
SIAM Review—1959
Siberian Mathematical Journal (Sibirskii Matematicheskii Zhurnal)—1966
Studia Mathematica—1929
Studies in Applied Mathematics—1921
Transactions of the American Mathematical Society—1900
Topology—1962
Zeitschrift fur Mathematische Logik und Grundlagen der Mathematik—1955

SCI data base in 1979 or 1980, we could not calculate their impact. They will be covered in future studies. They are: *Applied Mathematics and Computation, Computers and Mathematics with Applications, Indian Journal of Pure and Applied Mathematics, Journal of Pure and Applied Algebra, Journal of Graph Theory, Journal of Statistical Computation and Simulation, Numerical Functional Analysis and Optimization, Optimal Control Applications and Methods, Proceedings of the Indian Academy of Sciences—Mathematical Sciences, Semigroup Forum, SIAM Journal on Algebraic and Discrete Methods,* and *SIAM Journal on Scientific and Statistical Computing.*

Of the remaining 85 core math journals, 21 had impacts greater than .50, and they are listed in Table 4. The average impact for the 85 core journals in 1980 was .34, considerably lower than the 1.22 average impact for all *SCI* journals covered in the 1980 *JCR*. Clearly, the way impact factors are calculated places an emphasis on those journals which cite more current literature. While the average article in biochemistry will cite much literature that is two years old or less, the average math paper will tend to cite articles that are three or four years old.

This is demonstrated when we examine the "half-life" of math journals, which is shown in Table 4. Half-life tells us in which year the cumulated percentage of citations to a particular journal is equal to, or greater than, 50 percent. That is, we count back from 1980 to that year in which the 50 percent threshold is reached. As you can see from Table 4, none of the high impact core math journals had a shorter half-life than 5.2 years, and many had half-lives longer than ten years. In contrast, the *average* half-life for biochemistry journals is 5.3 years.

In Table 5 are listed 20 math journals with an *immediacy* index greater than or equal to .15. Immediacy tells us the number of times an average article published in a particular journal is cited in the *same* year of publication. That is, we divided the number of citations the journal received in 1980 by the number of source items it published that year. Again, we did not calculate immediacy indexes for those 12 journals listed above that were added too recently to the *SCI* data base. The average immediacy for the 85 core math journals in 1980 was .10—the average immediacy for all *SCI* journals that year was .26. The fact that the average math journal article has considerably lower impact and immediacy than the average *SCI* journal article indicates that mathematicians do cite older literature. This is why our *ISI/CompuMath* files will eventually cover at least 30 years of literature.

Another way to judge the quality of a journal is to determine how many "classics" it produces. That is, we can determine which core math journals published articles that received more than 50 citations from 1961 to 1980. Of the 97 core math journals, 58 published at least one article that was cited more than 50 times. Table 6 lists the most-cited paper from each of these 58 journals. Also shown, in parentheses, is the total number of classic papers they produced.

Obviously, articles in journals that have been in publication for many decades will have a better chance of accruing citations than those in recently issued journals. However, the total number of articles published during those years is also significant. We have identified 120 papers in *Annals of Mathematics* that were cited over 50 times. From the same data base, we identified 16 classics from

Table 2: The 50 journals most-cited by math core journals. A = citations received from math journals. B = total citations received. C = self-citations. D = percent of total citations which are math citations (A/B). E = percent of total citations which are self-citations (self-cited rate, C/B). F = percent of math citations which are self-citations (C/A). An asterisk indicates that the journal also appears on the list in Table 3.

Journal	A	B	C	D	E	F
*Trans. Amer. Math. Soc.	1956	2409	203	81.2	8.4	10.4
*Ann. Math.	1781	2140	82	83.2	3.8	4.6
Lect. Note. Math.	1498	2012	—	74.5	—	—
*Proc. Amer. Math. Soc.	1396	1571	252	88.9	16.0	18.1
*Math. Ann.	1082	1283	191	84.3	14.9	17.7
*Math. Z.	965	1104	88	87.4	8.0	9.1
*J. Algebra	943	971	279	97.1	28.7	29.6
*Pac. J. Math.	936	1049	84	89.2	8.0	9.0
*Amer. J. Math.	893	1059	34	84.3	3.2	3.8
*Bull. Amer. Math. Soc.	812	1048	39	77.5	3.7	4.8
*Invent. Math.	755	839	93	90.0	11.1	12.3
*J. Math. Anal. Appl.	707	1062	251	66.6	23.6	35.5
*Proc. London Math. Soc.	614	816	37	75.2	4.5	6.0
*J. London Math. Soc.	607	690	54	88.0	7.8	8.9
*Can. J. Math.	591	748	44	79.0	5.9	7.4
*C. R. Acad. Sci. Ser. A—Math.	584	819	266	71.3	32.5	45.5
Acta Math.—Djursholm	571	756	10	75.5	1.3	1.8
*J. Reine Angew. Math.	544	648	94	84.0	14.5	17.3
*Duke Math. J.	515	608	30	84.7	4.9	5.8
*J. Funct. Anal.	501	648	99	77.3	15.3	19.8
*Math. Comput.	479	870	193	55.1	22.2	40.3
Commun. Pure Appl. Math.	436	938	54	46.5	5.8	12.4
*SIAM J. Numer. Anal.	433	772	90	56.1	11.7	20.8
Topology	415	454	18	91.4	4.0	4.3
*Stud. Math.	395	443	84	89.2	19.0	21.3
*J. Differential Equations	394	505	119	78.0	23.6	30.2
Arch. Ration. Mech. Anal.	379	1110	—	34.1	—	—
Math. USSR Sbornik (Mat. Sbornik)	378	610	69	62.0	11.3	18.2
*Isr. J. Math.	369	421	69	87.6	16.4	18.7
*Amer. Math. Mon.	355	507	118	70.0	23.3	33.2
*Numer. Math.	347	699	84	49.6	12.0	24.2
SIAM J. Appl. Math.	341	882	73	38.7	8.3	21.4
*SIAM J. Contr. Optimizat.	321	658	96	48.8	14.6	29.9
*Advan. Math.	314	431	23	72.9	5.3	7.3
*Ill. J. Math.	297	341	30	87.1	8.8	10.1
Proc. Camb. Phil. Soc.	293	1345	—	21.8	—	—
*Arch. Math.	290	313	68	92.7	21.7	23.4
Fund. Math.	290	331	—	87.6	—	—
Proc. Nat. Acad. Sci. US	282	87,459	—	.3	—	—
Proc. Symp. Pure Math.	282	324	—	87.0	—	—
Comment. Math. Helv.	278	316	23	88.0	7.3	8.3
*Dokl. Akad. Nauk SSSR	264	10,802	—	2.4	—	—
Bull. Soc. Math. Fr.	262	290	9	90.3	3.1	3.4
J. Math. Soc. Jpn.	262	296	39	88.5	13.2	14.9
*J. Math. Phys.	261	5195	—	5.0	—	—
*J. Approx. Theor.	259	295	113	87.8	38.3	43.6
Math. USSR Izv. (Izv. Mat. Ser.)	249	279	28	89.2	10.0	11.2
Ann. Inst. Fourier	229	277	—	82.7	—	—
*J. Optimiz. Theor. Appl.	229	419	92	54.7	22.0	40.2
*Math. Scand.	229	258	27	88.8	10.5	11.8

Journal of Algebra. If you consider *both* the longevity and size of a journal, it will give you some idea of what to expect. We would need complete article counts on all journals to do a comprehensive analysis of the "classics factor."

In conclusion, we can now identify the "most significant" math journals as

Table 3: The 50 journals which most frequently cited math core journals. A = citations to math core journals. B = citations to all journals. C = self-citations. D = percent of citations to all journals which are to math core journals (A/B). E = percent of total citations which are self-citations (self-cit*ing* rate, C/B). F = percent of math citations which are self-citations (C/A). An asterisk indicates that the journal also appears on *the list in Table 2.*

Journal	A	B	C	D	E	F
*Proc. Amer. Math. Soc.	1466	2938	252	49.9	8.6	17.2
*Trans. Amer. Math. Soc.	1282	2658	203	48.2	7.6	15.8
*J. Algebra	1160	2244	279	51.7	12.4	24.1
*J. Math. Anal. Appl.	1023	2709	251	37.8	9.3	24.5
*Math. Ann.	985	1991	191	49.5	9.6	19.4
*C. R. Acad. Sci. Ser. A—Math.	892	2560	266	34.8	10.4	29.8
*Math. Z.	800	1681	88	47.6	5.2	11.0
*J. Funct. Anal.	726	1620	99	44.8	6.1	13.6
*Pac. J. Math.	712	1466	84	48.6	5.7	11.8
*Arch. Math.	649	1354	68	47.9	5.0	10.5
*Invent. Math.	637	1540	93	41.4	6.0	14.6
*J. Reine Angew. Math.	633	1446	94	43.8	6.5	14.8
*J. London Math. Soc.	554	1114	54	49.7	4.8	9.7
Commun. Algebra	526	996	36	52.8	3.6	6.8
Linear Algebra Appl.	510	1429	89	35.7	6.2	17.5
*Math. Comput.	507	1255	193	40.4	15.4	38.1
*J. Differential Equations	497	1279	119	38.9	9.3	23.9
Indian J. Pure Appl. Math.	430	1375	48	31.3	3.5	11.2
SIAM J. Math. Anal.	429	1164	62	36.9	5.3	14.5
*Can. J. Math.	413	894	44	46.2	4.9	10.7
Proc. Roy. Soc. Edinburgh Sect. A Math. Proc. Cambridge Phil. Soc.	392	881	42	44.5	4.8	10.7
	385	981	37	39.2	3.8	9.6
*Isr. J. Math.	382	724	69	52.8	9.5	18.1
*Bull. Amer. Math. Soc.	366	893	39	41.0	4.4	10.7
*Ann. Math.	362	717	82	50.5	11.4	22.7
*J. Approx. Theor.	361	737	113	49.0	15.3	31.3
*Dokl. Akad. Nauk SSSR	356	19,925	—	1.8	—	—
*Ill. J. Math.	352	713	30	49.4	4.2	8.5
*J. Math. Phys.	352	6212	—	5.7	—	—
Indiana Univ. Math. J.	344	744	23	46.2	3.1	6.7
Semigroup Forum	342	787	123	43.5	15.6	36.0
Discrete Math.	333	881	62	37.8	7.0	18.6
*Proc. London Math. Soc.	329	619	37	53.2	6.0	11.2
J. Pure Appl. Algebra	316	847	46	37.3	5.4	14.6
*Amer. J. Math.	315	662	34	47.6	5.1	10.8
Compos. Math.	312	732	29	42.6	4.0	9.3
*Numer. Math.	312	845	84	36.9	9.9	26.9
*Duke Math. J.	310	730	30	42.5	4.1	9.7
*Amer. Math. Mon.	308	1094	118	28.2	10.8	38.3
*Advan. Math.	302	673	23	44.9	3.4	7.6
Manuscripta Math.	302	741	28	40.8	3.8	9.3
*SIAM J. Numer. Anal.	290	857	90	33.8	10.5	31.0
SIAM Rev.	281	987	17	28.5	1.7	6.0
*J. Optimiz. Theor. Appl.	277	818	92	33.9	11.2	33.2
*Stud. Math.	276	530	84	52.1	15.8	30.4
*SIAM J. Contr. Optimizat.	246	815	96	30.2	11.8	39.0
IEEE Trans. Automat. Contr.	245	3464	—	7.1	—	—
*Math. Scand.	229	466	27	49.1	5.8	11.8
Quart. J. Math.	229	408	18	56.1	4.4	7.9
Math. Program.	226	738	97	30.6	13.1	42.9

those which ranked among the top 20 in terms of total number of citations *from* the core (Table 2), total number of citations *to* the core (Table 3), impact (Table 4), immediacy (Table 5), and/or the number of highly cited articles they published (Table 6). Although no core journal appeared among the top 20 on *all*

Table 4: Core pure and applied math journals with impact factors greater than or equal to .50 in 1980, number of citations in 1978 and 1979, number of source items in 1978 and 1979, and half-lives (in years), 1980 *JCR*™. Half-life is calculated by determining the year in which the cumulated percentage of citations to a particular journal equals 50 percent. For example, the 1980 *JCR* shows that the cumulated percentage for *Advances in Mathematics* was 48.25 from 1980 to 1976 and 59.16 if citations through 1975 are included. So the half-life for this journal is between five and six years. To calculate the decimal value, we first subtract the cumulated percentage *before* the half-life is reached: that is, 50.00 − 48.25 = 1.75. We then subtract the same percentage from the cumulated percentage *after* the half-life is reached: 59.16 − 48.25 = 10.91. Finally, the first value is divided by the second: 1.75/10.91 = .16. The quotient is then rounded to the nearest tenth and added to the half-life integer. Thus, the half-life for *Advances in Mathematics* is 5.2 years.

Journal	Impact	Citations in 1978 & 1979	Source Items in 1978 & 1979	Half-Life
Commun. Pure Appl. Math.	1.45	71	49	> 10.0
Ann. Math.	1.14	97	85	> 10.0
Advan. Math.	.98	95	97	5.2
SIAM Rev.	.98	61	62	7.9
Acta Math.—Djursholm	.93	37	40	> 10.0
Invent. Math.	.93	170	183	5.2
SIAM J. Numer. Anal.	.91	152	167	6.3
Stud. Appl. Math.	.89	48	54	6.8
Duke Math. J.	.86	73	85	> 10.0
Math. Program.	.86	102	119	5.7
Bull. Amer. Math. Soc.	.85	80	94	> 10.0
J. Funct. Anal.	.82	151	185	5.9
SIAM J. Contr. Optimizat.	.81	97	120	6.4
SIAM J. Appl. Math.	.76	172	226	6.2
Proc. London Math. Soc.	.75	72	96	> 10.0
Quart. Appl. Math.	.68	49	72	> 10.0
Mem. Amer. Math. Soc.	.66	19	29	8.5
Amer. J. Math.	.61	78	128	> 10.0
Math. Comput.	.58	125	217	7.4
Numer. Math.	.55	79	145	> 10.0
Compos. Math.	.54	37	68	7.0

Table 5: Core pure and applied math journals with immediacy index greater than or equal to .15, number of citations in 1980, and number of source items in 1980 (1980 *JCR*™).

Journal	Immediacy	Citations in 1980	Source Items in 1980
Proc. London Math. Soc.	.46	19	41
Math. Scand.	.34	12	35
Invent. Math.	.28	26	94
Compos. Math.	.27	15	55
Mem. Amer. Math. Soc.	.25	3	12
Math. Comput.	.21	22	105
J. Funct. Anal.	.19	19	100
Ann. Math.	.18	8	45
Math. Proc. Cambridge Phil. Soc.	.17	16	95
Amer. J. Math.	.16	7	44
Bull. Amer. Math. Soc.	.16	9	55
Stud. Appl. Math.	.16	5	32
Acta Math.—Djursholm	.15	2	13
Acta Sci. Math.	.15	4	26
Bull. Soc. Math. Fr.	.15	5	33
C. R. Acad. Sci. Ser. A—Math.	.15	69	470
Int. J. Comput. Math.	.15	4	27
Proc. Roy. Soc. Edinburgh Sect. A	.15	9	61
Quart. J. Math.	.15	6	40
SIAM J. Math. Anal.	.15	14	93

Table 6: The most-cited papers from the math core journals. The total number of papers receiving 50 or more citations from each journal is shown in parentheses.

Bibliographic Data

Total Citations
1961-1980

225 (4) **Ablowitz M J, Kaup D J, Newell A C & Segur H.** The inverse scattering transform-Fourier analysis for non-linear problems. *Stud. Appl. Math.* 53:249-315, 1974.

105 (7) **Adams J F.** On the groups *J(X). Topology* 5:21-71, 1966.

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