

Math Locally

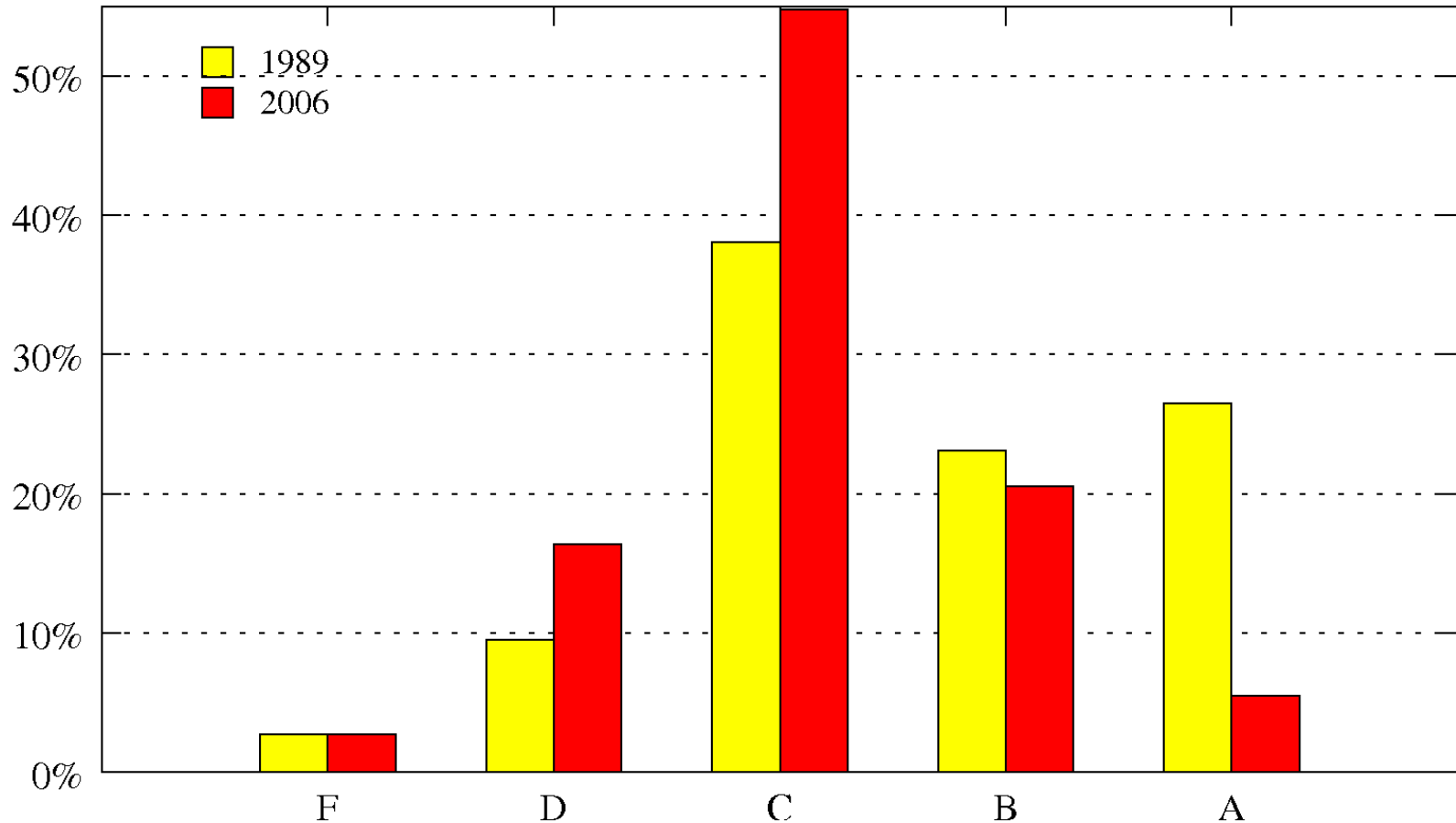
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Johns Hopkins Calculus 1 1989-2006

- Same final exam in 1989 and 2006.
- Same average SATM scores.
- Same percentage of Arts and Science freshmen.
- JHU was much more selective in 2006 than 1989.

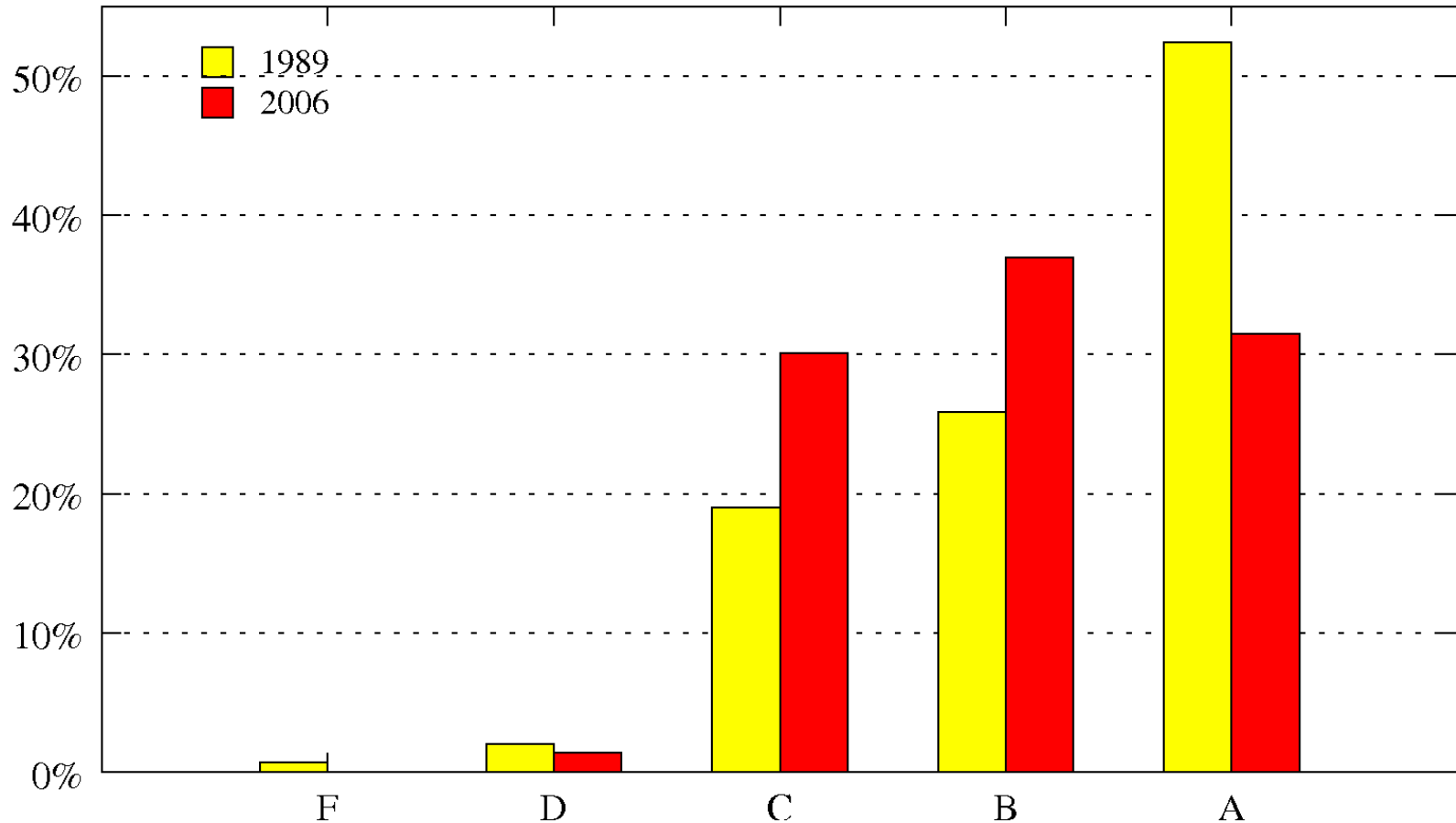
Grades on the 1989 scale

Figure 2: Percentage of letter grades on the 1989 grading scale



Grades on the 2006 scale

Figure 3: Percentage of letter grades on the 2006 grading scale

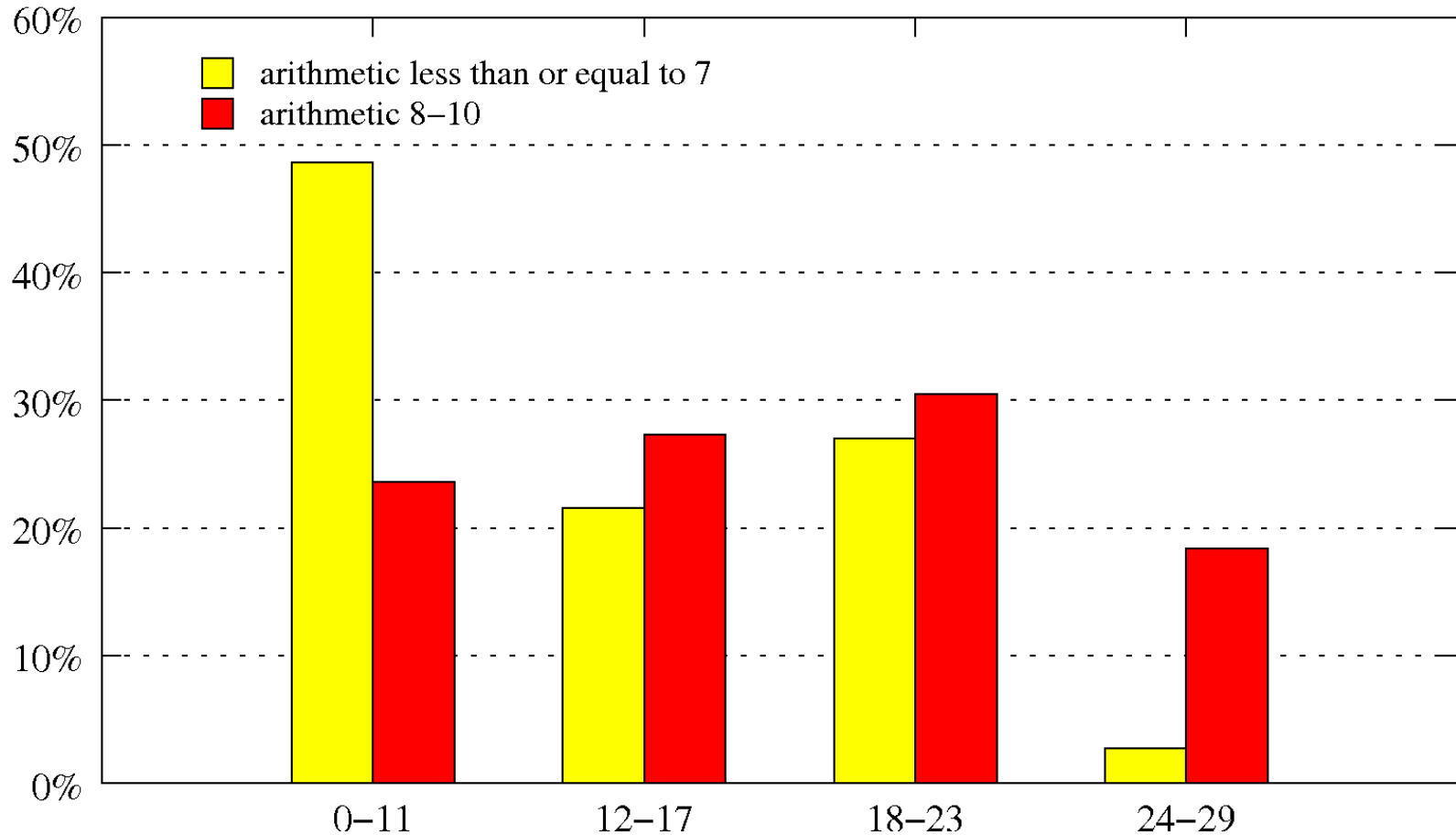


Arithmetic and higher math.

- 239 Calculus III students, Fall 2007.
- A 10 question arithmetic test first day of class.
- A 30 point 3-hour final exam.
- Almost no arithmetic in this course.

Arithmetic scores versus final exam

Figure 1: Arithmetic test scores and final exam scores

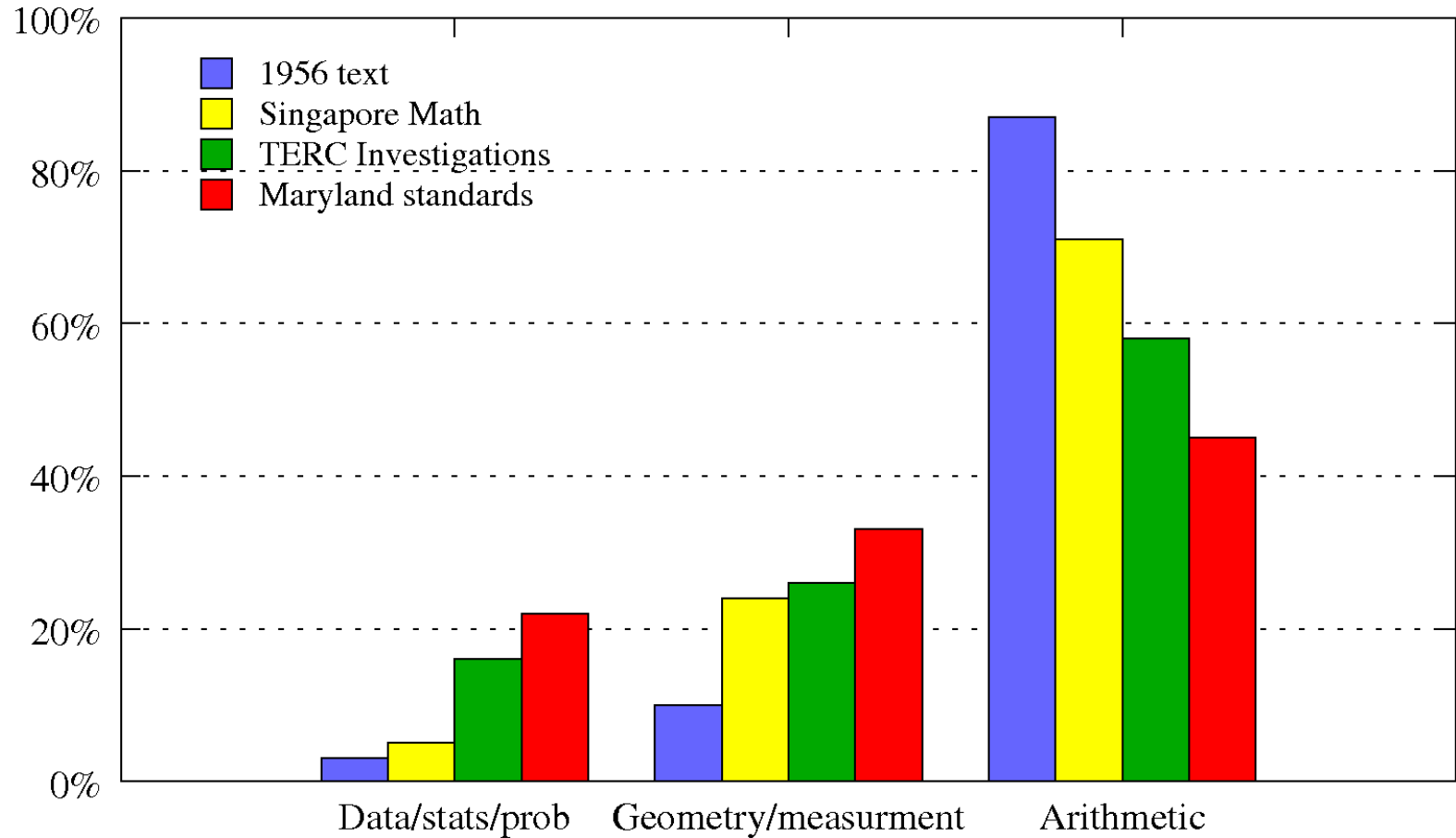


Where does arithmetic come from?

- Comparing 5th grades using
- My 1956 fifth grade text
- The Singapore Math US Edition fifth grade text
- TERC Investigations 2nd Edition 2008 fifth grade materials
- Maryland State voluntary curriculum fifth grade

5th Grade Time on Task

Figure 1: Arithmetic, Geometry and Data comparisons

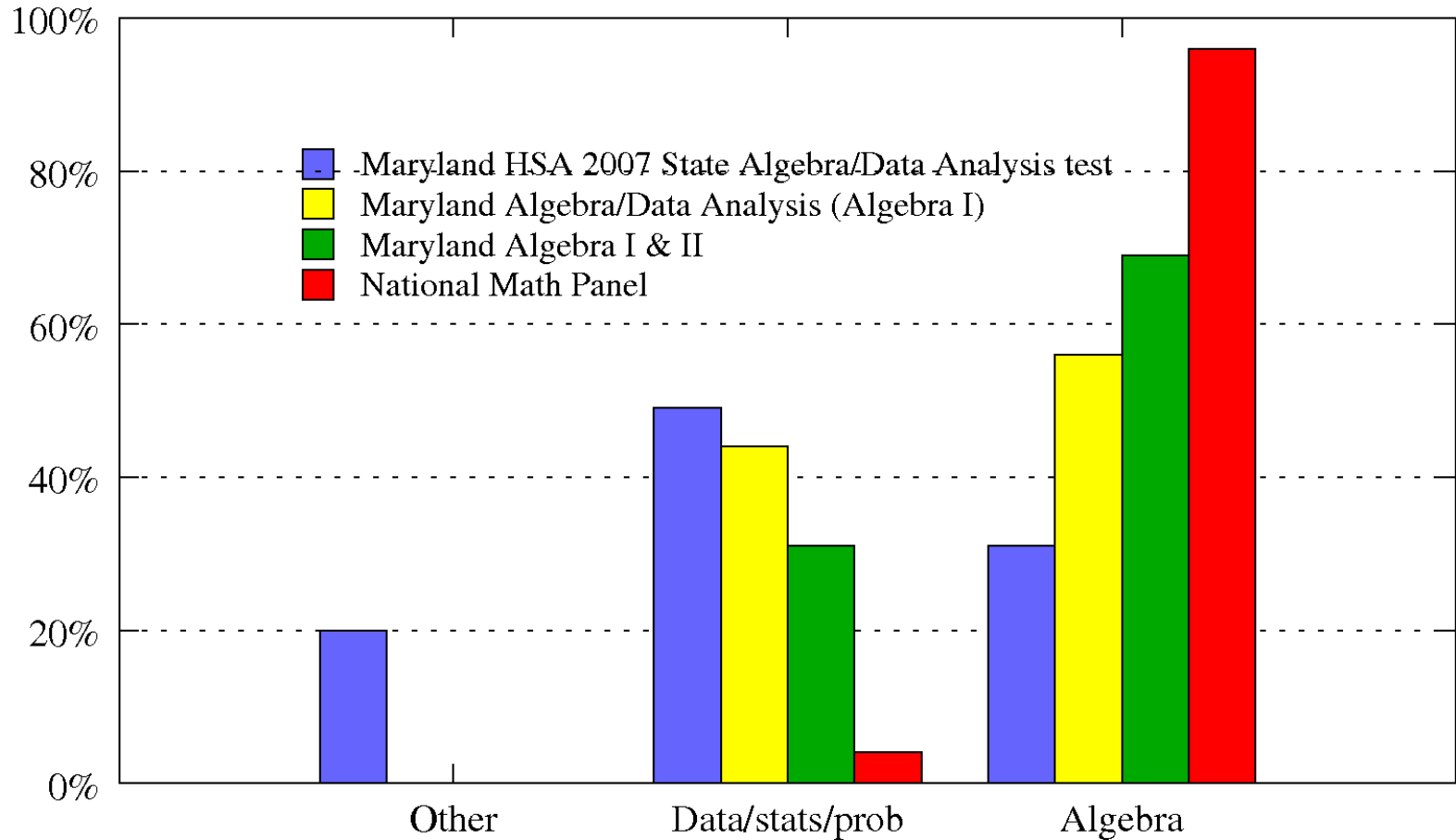


Next: Algebra

- Compare
- Maryland state Algebra/Data Analysis test
- Maryland state Algebra/Data curriculum
- Maryland Algebra I & II curriculum
- National Math Panel

How Much Algebra?

Figure 1: How much algebra?



Maryland Preparation for College

- Students need arithmetic
- They get half
- Students need algebra
- They get $\frac{3}{4}$
- Percentage of MD High School Graduates (2005-2006) “Assessed as Needing Math Remediation”: 44.3%

University of Maryland, College Park

- Requires 3 years of high school math
- Strongly recommends a fourth
- Middle 50% on SAT, 1240-1380

High school math at College Park

- Count students in non-credit remedial math
- Count students in credit bearing courses like college algebra that are just high school algebra repackaged for college
- Count students in Calculus I
- The percentage of these students who are taking high school math is: 46.6%