

Figure 10. Algebra-Related 4th and 8th Grade Sample Items.

Item I7 is a 4th grade item that focuses on representing a real world situation with a simple equation. The 8th grade item, K4, is more demanding and focuses on solving an inequality presented in symbolic form. Both items are multiple choice although the tests also included short answer, fill-in-the-blank items and some that required a longer response. These items illustrate typical U.S. student performance for the Algebra-related sub-topic; that is, the "percent correct" on these items are close to the average percent correct across all Algebra-related items on the TIMSS test. U.S. 4th graders average performance was better than the international average; the average U.S. 8th grade performance was not.

- I7. Tanya has read the first 78 pages in a book that is 130 pages long. Which number sentence could Tanya use to find the number of pages she must read to finish the book?
- A. $130 + 78 = \square$
 - B. $\square - 78 = 130$
 - C. $130 \div 78 = \square$
 - D. $130 - 78 = \square$

	Grade 3	Grade 4
Percent Correct on Item I7 (Option D)	49.0	64.9
Patterns, Relations & Functions: U.S. Average Percent Correct	53	66
International Average Percent	47	59

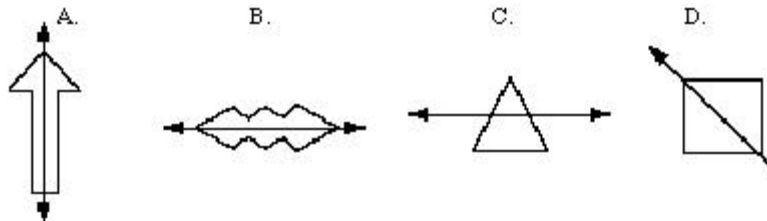
- K4. $4\frac{x}{2} < 7$ is equivalent to
- A. $x < \frac{7}{2}$
 - B. $x < 5$
 - C. $x < 14$
 - D. $x > 5$
 - E. $x > 14$

	Grade 7	Grade 8
Percent Correct on Item K4 (Option C)	38.4	50.2
Algebra: U.S. Average Percent Correct	44	51
International Average Percent	44	52

Figure 10. Geometry 4th and 8th Grade Sample Items.

Item J2 is a 4th grade item about lines of symmetry. Item K8 is a more advanced 8th grade item based on knowledge of congruent triangles. Both items are, again, multiple choice. The "percent correct" for the 4th grade item shows it was typical of U.S. student performance which was somewhat above the international average. The "percent correct" for the 8th grade item was indicative of U.S. student performance which was below the the international 8th grade average. This reflects the fact, at least in part, that U.S. 8th grade mathematics has not moved on to more advanced geometry topics while many of the other countries have.

J2. Which of these does NOT show a line of symmetry?

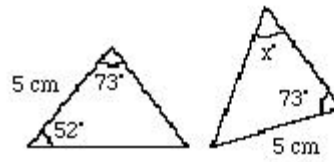


	Grade 3	Grade 4
Percent Correct on Item J2 (Option C)	63.3	71.7
Geometry: U.S. Average Percent Correct	61	71
International Average Percent	55	64

K8. These triangles are congruent. The measures of some of the sides and angles of the triangles are shown.

What is the value of x ?

- A. 52
- B. 55
- C. 65
- D. 73
- E. 75



	Grade 7	Grade 8
Percent Correct on Item K8 (Option B)	14.7	16.2
Geometry: U.S. Average Percent Correct	44	48
International Average Percent	49	56