

Findings from the 2007 IEA Trends in International Mathematics and Science Study (TIMSS) and the CRET Research Survey

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A summary of the findings from the 2007 IEA Trends in International Mathematics and Science Study (TIMSS) was released by the National Education Policy Research Center.

<http://www.nier.go.jp/timss/2007/index.html>

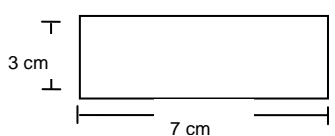
According to the summary, Japan's ranking remained high, even though the number of nations which participated in this survey had increased to 36, up from the previous total of 25. However, on certain questions, Japanese students fared poorly.

One such question, given to fourth grade students, involved the measurement of a geometric shape. A rectangle measuring 3 cm x 7 cm was shown, and the students were asked to select the circumference from the following four choices: (1) 7 cm, (2) 10 cm, (3) 20 cm, or (4) 21 cm. The correct answer was (3) 20 cm, but only 33.7% of Japanese students answered it correctly. In comparison with Singapore's 91.9%, Japan did very poorly. Considering that the international average was 51.2%, Japan's weak performance must be given serious consideration.

As of yet, details pertaining to the specific response ratios for each question on the exam have not been released. However, most students likely mistook the question as asking for the rectangle's area and thus answered (4) instead.

What is the perimeter of this rectangle?

(1) 7 cm
(2) 10 cm
(3) 20 cm
(4) 21 cm



TIMSS Question

(Source: National Institute for Educational Policy Research HP TIMSS2007 example question)

In the development and research of the 2007 arithmetic - mathematic vocabulary test, CRET conducted a preliminary survey which included a similar question to the one above. The CRET question and results are as follows:

Choose the correct answer from the following five options:

What is the total circumference of a square with 5 cm sides?

- (a) 6 cm (b) 9 cm
(c) 10 cm (d) 20 cm
(e) 25 cm

CRET Arithmetic Vocabulary Question

66.5% answered this question correctly, while 20.5% chose (e) 25cm. In the CRET test, 66.5% of students were able to calculate the circumference of a square, whereas in the TIMSS test, only 33.7% were able to calculate the circumference of a non-square rectangle. The CRET score is approximately double that of the TIMSS score. With the CRET test, no diagram was shown, whereas with the TIMSS question, a diagram of a non-square rectangle was given. It could be that having a diagram lowers the test results. In any case, students need guidance in making the distinction between the terms “circumference” and “area”.

Further, “*Vocabulary Used in Arithmetic Textbooks*” was edited by Hiroshi Shimizu and published by the Aichi University of Education Press.

http://www.schoolweb.ne.jp/weblog/index.php?id=2370003&type=2&category_id=3502