TRENDS IN INTERNATIONAL MATHEMATICS AND SCIENCE STUDY

# TIMSS
## Advanced
# 2008

$x \to \infty$

$\pi$

## Student Questionnaire

## Advanced Mathematics

$1)(x^2 - 2x) + (1 - x^2)(x^3 +$

**<TIMSS Advanced National Research Center Name>**
<Address>

IEA

TIMSS
Advanced
2008

# General Directions

In this questionnaire, you will find questions about yourself. Some questions ask for facts while other questions ask for your opinions.

Read each question carefully and answer as accurately as possible. You may ask for help if you do not understand something or are not sure how to respond.

Each question is followed by a number of answers. Fill in the circle next to the answer of your choice as shown in the example below.

## Example

**How often do you do these things?**

*Fill in **one** circle for each line*

| | Every day | At least once a week | Once or twice a month | A few times a year | Never |
|---|---|---|---|---|---|
| a) I listen to music | ① | ② | ● | ④ | ⑤ |
| b) I talk with my friends | ● | ② | ③ | ④ | ⑤ |
| c) I play sports | ① | ● | ③ | ④ | ⑤ |

Read each question carefully, and pick the answer you think is best. Fill in the circle next to or below your answer. If you decide to change an answer to a question, put an "x" over your first choice, and then fill in the circle for your new choice. Ask for help if you do not understand something or are not sure how to answer.

Thank you for your time, effort, and thought in completing this questionnaire.

# About You

## 1

### When were you born?

A. *Fill in the circle next to the year you were born*

B. *Fill in the circle next to the month you were born*

| Year | Month |
|------|-------|
| 1986 - ○ | January - ○ |
| 1987 - ○ | February - ○ |
| 1988 - ○ | March - ○ |
| 1989 - ○ | April - ○ |
| 1990 - ○ | May - ○ |
| 1991 - ○ | June - ○ |
| 1992 - ○ | July - ○ |
| 1993 - ○ | August - ○ |
| Other - ○ | September - ○ |
| | October - ○ |
| | November - ○ |
| | December - ○ |

## 2

### Are you a female or a male?

*Fill in **one** circle only*

Female - - - - - - - - - - - - - - - - - - - - - - - - - - - ①

Male - - - - - - - - - - - - - - - - - - - - - - - - - - - - - ②

## 3

**How often do you speak <language of test> at home?**

*Fill in **one** circle only*

Always - - - - - - - - - - - - - - - - - - - - - - - - - - ①

Almost always - - - - - - - - - - - - - - - - - - - - ②

Sometimes - - - - - - - - - - - - - - - - - - - - - - ③

Never - - - - - - - - - - - - - - - - - - - - - - - - - - ④

## 4

**About how many books are there in your home? (Do not count magazines, newspapers, or your school books.)**

*Fill in **one** circle only*

None or very few
(0-10 books) - - - - - - - - - - - - - - - - - - - - - ①

Enough to fill one shelf
(11-25 books) - - - - - - - - - - - - - - - - - - - - ②

Enough to fill one bookcase
(26-100 books) - - - - - - - - - - - - - - - - - - - ③

Enough to fill two bookcases
(101-200 books) - - - - - - - - - - - - - - - - - - ④

Enough to fill three or more bookcases
(more than 200 books) - - - - - - - - - - - - - - ⑤

# About You (Continued)

**5**

**Do you have any of these things at your home?**

*Fill in **one** circle for each line*

Yes    No

a) Computer (do not include
PlayStation®, GameCube®, XBox®,
or other TV/video game computers) - ① - - - - - ②

b) Internet connection - - - - - - - - - - - - - ① - - - - - ②

c) Your own computer - - - - - - - - - - - - - ① - - - - - ②

d) Your own graphing calculator - - - - - - ① - - - - - ②

e) Study desk/table for your use - - - - - - - ① - - - - - ②

f) <country-specific> - - - - - - - - - - - - - ① - - - - - ②

g) <country-specific> - - - - - - - - - - - - - ① - - - - - ②

h) <country-specific> - - - - - - - - - - - - - ① - - - - - ②

i) <country-specific> - - - - - - - - - - - - - ① - - - - - ②

## 6

**A. What is the highest level of education completed by your mother (or stepmother or female guardian)?**

*Fill in **one** circle only*

Some <ISCED Level 1 or 2 > or did not
go to school - - - - - - - - - - - - - - - - - - - - - - - ①

<ISCED 2> - - - - - - - - - - - - - - - - - - - - - - - ②

<ISCED 3> - - - - - - - - - - - - - - - - - - - - - - - ③

<ISCED 4> - - - - - - - - - - - - - - - - - - - - - - - ④

<ISCED 5B> - - - - - - - - - - - - - - - - - - - - - ⑤

<ISCED 5A, first degree> - - - - - - - - - - - - ⑥

Beyond <ISCED 5A, first degree> - - - - - - - ⑦

I don't know - - - - - - - - - - - - - - - - - - - - - - ⑧


**B. What is the highest level of education completed by your father (or stepfather or male guardian)?**

*Fill in **one** circle only*

Some <ISCED Level 1 or 2 > or did not
go to school - - - - - - - - - - - - - - - - - - - - - - - ①

<ISCED 2> - - - - - - - - - - - - - - - - - - - - - - - ②

<ISCED 3> - - - - - - - - - - - - - - - - - - - - - - - ③

<ISCED 4> - - - - - - - - - - - - - - - - - - - - - - - ④

<ISCED 5B> - - - - - - - - - - - - - - - - - - - - - ⑤

<ISCED 5A, first degree> - - - - - - - - - - - - ⑥

Beyond <ISCED 5A, first degree> - - - - - - - ⑦

I don't know - - - - - - - - - - - - - - - - - - - - - - ⑧

## 7

**A. Was your mother (or stepmother or female guardian) born in <country>?**

Yes     No

Fill in *one* circle only - - - - - - - - - - - - - - - - - ① - - - - - ②

**B. Was your father (or stepfather or male guardian) born in <country>?**

Yes     No

Fill in *one* circle only - - - - - - - - - - - - - - - - - ① - - - - - ②

## 8

**A. Were you born in <country>?**

Yes     No

Fill in *one* circle only - - - - - - - - - - - - - - - - - ① - - - - - ②

*If **Yes**, please go to question **9** ➡*

**B. If you were not born in <country>, how old were you when you came to <country>?**

*Fill in **one** circle only*

Older than 10 years old - - - - - - - - - - - - - - ①

5 to 10 years old - - - - - - - - - - - - - - - - - - - - ②

Younger than 5 years old - - - - - - - - - - - - - ③

**9**

**After <secondary school>, do you intend to continue your education?**

*Fill in **one** circle only*

Yes - - - - - - - - - - - - - - - - - - - - - - - - - - - - ①

Yes, but not immediately - - - - - - - - - - - - - ②

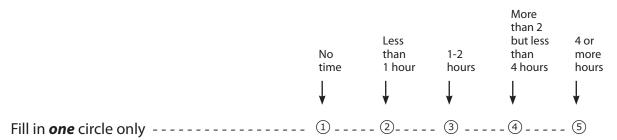No - - - - - - - - - - - - - - - - - - - - - - - - - - - - - ③

*If **No**, please go to question **11** ➡*

**10**

**If you plan to continue your education, which of the following comes closest to the area you intend to study most?**

*Fill in **one** circle only*

a)  SCIENCE (e.g., physics, chemistry, biological, earth sciences) - - - - - - - - - - ①

b)  HEALTH SCIENCES (e.g., dentistry, medicine, pharmacy, veterinary medicine) - - - - - - - - - - - - - - - - - - - - - ②

c)  ENGINEERING (e.g., chemical engineering, civil engineering, electrical engineering, mechanical engineering) - - - - - - - - - - - - - - - - - - ③

d)  BUSINESS (e.g., accounting, marketing, finance, administration, management) - - - - - - - - - - - - - - - - - - ④

e)  COMPUTER and INFORMATION SCIENCES (e.g., systems analyst) - - - ⑤

f)  MATHEMATICS (e.g., calculus, statistics) - - - - - - - - - - - - - - - - - - - - - ⑥

g)  SOCIAL SCIENCES (e.g., psychology, economics, sociology, law) - - - - - - - - ⑦

h)  OTHER FIELD OF STUDY - - - - - - - - ⑧

# Using Computers

**11** ■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■■

**A. How much time each day, on average, do you spend using a computer? (Do not include PlayStation®, GameCube®, XBox®, or other TV/video game computers.)**
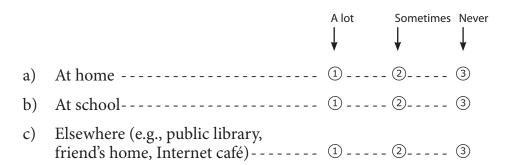
| | No time | Less than 1 hour | 1-2 hours | More than 2 but less than 4 hours | 4 or more hours |
|---|---|---|---|---|---|
| Fill in *one* circle only | ① | ② | ③ | ④ | ⑤ |

*If **No Time**, please go to question **12** ➡*

**B. Where do you use a computer?**

*Fill in **one** circle for each line*

| | A lot | Sometimes | Never |
|---|---|---|---|
| a) At home | ① | ② | ③ |
| b) At school | ① | ② | ③ |
| c) Elsewhere (e.g., public library, friend's home, Internet café) | ① | ② | ③ |

**C. When you use a computer for your schoolwork, what do you use it for?**

*Fill in **one** circle for each line*

| | Yes | No |
|---|---|---|
| a) Researching information from the Internet | ① | ② |
| b) Word processing | ① | ② |
| c) Analyzing and presenting data (e.g., spreadsheets, graphing) | ① | ② |
| d) Using specialized programs (e.g., simulations, algebra programs) | ① | ② |
| e) Other | ① | ② |

# Things You Do Outside of School

**12** ━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━━

**On a normal school day, how much time, on average, do you spend before or after school doing each of these things?**

*Fill in **one** circle for each line*

|  | No time | Less than 1 hour | 1-2 hours | More than 2 but less than 4 hours | 4 or more hours |
|---|---|---|---|---|---|
| a) I do schoolwork (study or homework) | ① | ② | ③ | ④ | ⑤ |
| b) I take part in organized activities (e.g., sports, music, clubs, community service, etc.) | ① | ② | ③ | ④ | ⑤ |
| c) I use a computer for things other than schoolwork (e.g., messaging, email, gaming, music, etc.) | ① | ② | ③ | ④ | ⑤ |
| d) I spend time with friends | ① | ② | ③ | ④ | ⑤ |
| e) I work at a paid job | ① | ② | ③ | ④ | ⑤ |
| f) I watch movies or television | ① | ② | ③ | ④ | ⑤ |

# Mathematics in School

**13** ▐

**Why are you studying advanced mathematics?**

**Please indicate how important each reason was for you.**

*Fill in **one** circle for each line*

| | Very important | Important | Unimportant | Very unimportant |
|---|---|---|---|---|

a) I enjoy solving mathematical problems ---------------------- ① ------ ② ------ ③ ------ ④

b) I usually do well in mathematics ---- ① ------ ② ------ ③ ------ ④

c) Advanced mathematics lessons are interesting ------------------- ① ------ ② ------ ③ ------ ④

d) Studying or doing mathematics homework does not take me a lot of time --------------------- ① ------ ② ------ ③ ------ ④

e) I need advanced mathematics to pursue the career of my choice ------ ① ------ ② ------ ③ ------ ④

f) Advanced mathematics has good teachers ------------------- ① ------ ② ------ ③ ------ ④

g) My parents advised me to study advanced mathematics ------------ ① ------ ② ------ ③ ------ ④

h) I expect that I will easily pass the tests ① ------ ② ------ ③ ------ ④

i) I like the way advanced mathematics is taught in my school------------- ① ------ ② ------ ③ ------ ④

j) Studying advanced mathematics will give me more options after finishing <secondary school> -------------- ① ------ ② ------ ③ ------ ④

k) A teacher advised me to study advanced mathematics ------------ ① ------ ② ------ ③ ------ ④

l) My friends also are studying advanced mathematics ------------ ① ------ ② ------ ③ ------ ④

m) The <study coordinator/mentor> of my school advised me to study advanced mathematics ------------ ① ------ ② ------ ③ ------ ④

## 14

**A. How much time do you spend in mathematics class each week?**

_____

*Write in the number of **minutes***

*Please convert the number of classes/periods into minutes.*

**B. Are you taking or have you taken <the physics track/course that defines the physics population>?**

|  | Yes | No |
|---|---|---|
|  | ↓ | ↓ |

Fill in *one* circle only  - - - - - - - - - - - - - - - - - -  ① - - - - - ②

## 15

**How often do you do these activities in your mathematics lessons?**

*Fill in **one** circle for each line*

| | Every or almost every lesson | About half the lessons | Some lessons | Never |
|---|---|---|---|---|
| | ↓ | ↓ | ↓ | ↓ |
| a) We listen to the teacher present new material | ① | ② | ③ | ④ |
| b) We work problems on our own | ① | ② | ③ | ④ |
| c) We work on problems together with other students | ① | ② | ③ | ④ |
| d) We review what has been taught | ① | ② | ③ | ④ |
| e) We review homework | ① | ② | ③ | ④ |
| f) We have oral or written tests or quizzes | ① | ② | ③ | ④ |

## 16

**How often do you do the following in your mathematics lessons?**

*Fill in **one** circle for each line*

| | Every or almost every lesson | About half the lessons | Some lessons | Never |
|---|---|---|---|---|
| a) We memorize formulas and procedures | ① | ② | ③ | ④ |
| b) We solve problems like the examples in our textbook | ① | ② | ③ | ④ |
| c) We use mathematical terms to represent relationships | ① | ② | ③ | ④ |
| d) We discuss problem-solving strategies | ① | ② | ③ | ④ |
| e) We decide on our own procedures for solving complex problems | ① | ② | ③ | ④ |
| f) We communicate our arguments | ① | ② | ③ | ④ |
| g) We watch the teacher demonstrate mathematics on a computer | ① | ② | ③ | ④ |

**17**

**A. How often do you use the following in your mathematics lessons?**

*Fill in **one** circle for each line*

| | Every or almost every lesson | About half the lessons | Some lessons | Never |
|---|---|---|---|---|
| a) Calculator | ① | ② | ③ | ④ |
| b) Computer | ① | ② | ③ | ④ |
| c) Other computing technology | ① | ② | ③ | ④ |

**B. If you use a calculator in your mathematics lessons, what kind of calculator do you usually use?**

*Fill in **one** circle only*

Simple calculator – basic functions only
$(+, -, \times, \div, \%, \text{ or } \sqrt{\phantom{x}})$, without functions
like log, sin, cos ① 

Scientific calculator – basic functions
$(+, -, \times, \div, \%, \text{ or } \sqrt{\phantom{x}})$ and also functions
like log, sin, cos ② 

Graphing calculator – scientific and also
able to display some graphs ③ 

Symbolic calculator – graphing and also
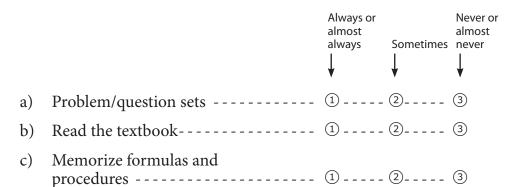able to solve expressions in symbolic terms ④

# Homework

## 18

**A. How much time do you spend doing mathematics homework assignments each week?**

_____

*Write in the number of **minutes***

*Please convert the number of hours into minutes.*

**B. When doing mathematics homework, how often do you do each of the following?**

*Fill in **one** circle for each line*

| | Always or almost always | Sometimes | Never or almost never |
|---|---|---|---|
| a) Problem/question sets | ① | ② | ③ |
| b) Read the textbook | ① | ② | ③ |
| c) Memorize formulas and procedures | ① | ② | ③ |

## 19

**How often do you use a computer to work on mathematics outside of class?**

*Fill in **one** circle only*

| | |
|---|---|
| Almost every day | ① |
| Once or twice a week | ② |
| About once a month | ③ |
| Never or almost never | ④ |

**20**

**How often do you work with a mathematics tutor?**

*Fill in **one** circle only*

More than once a week - - - - - - - - - - - - - - ①

About once a week - - - - - - - - - - - - - - - - - ②

About once a month - - - - - - - - - - - - - - - ③

Once in a while when I need extra help - - - ④

Never - - - - - - - - - - - - - - - - - - - - - - - - - - ⑤

**21**

**How often do you prepare for a mathematics test or examination?**

*Fill in **one** circle only*

About once a week - - - - - - - - - - - - - - - - - ①

About once a month - - - - - - - - - - - - - - - ②

About 5 times a year - - - - - - - - - - - - - - - ③

About twice a year - - - - - - - - - - - - - - - - ④

Never - - - - - - - - - - - - - - - - - - - - - - - - - - ⑤

# Thank You
## for completing
## this questionnaire

**TIMSS & PIRLS**
International Study Center
Lynch School of Education, Boston College

# Student Questionnaire

# Advanced Mathematics