

Sch	nool ID	Teache	er ID# Link#	
		Eligible	Participation	
Class ID #	Grade	Students	Status	
				,

IEA Third International Mathematics and Science Study - Repeat

Mathematics Teacher Questionnaire Main Survey

Name of Class:	

Your school has agreed to participate in the Third International Mathematics and Science Study - Repeat (TIMSS-R), an educational research project sponsored by the International Association for the Evaluation of Educational Achievement (IEA). TIMSS-R is investigating mathematics and science achievement in about forty countries around the world. It is designed to measure and interpret differences in national education systems in order to help improve the teaching and learning of mathematics and science worldwide.

This questionnaire is addressed to teachers of mathematics, who are asked to supply information about their academic and professional backgrounds, instructional practices, and attitudes towards teaching mathematics. Since your class has been selected as part of a nationwide sample, your responses are very important in helping to describe mathematics classes in the United States.

Some of the questions in this questionnaire ask about **your mathematics class**. This is the class which is identified at the top of this page, and which will be tested as part of TIMSS-R in your school.

It is important that you answer each question carefully so that the information provided reflects your situation as accurately as possible. It is estimated that it will require approximately 60 minutes to complete this questionnaire.

Your cooperation in completing this questionnaire is greatly appreciated.

TIMSS Study Center Boston College Chestnut Hill, MA 02467 USA

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GENERAL DIRECTIONS:

- 1. Identify a place and a time when you will be able to complete this questionnaire without being interrupted. This questionnaire has been designed to be completed within 60 minutes by most teachers. However, the amount of time you will need may vary. To make it as easy as possible for you to respond, most items may be completed simply by checking the appropriate box.
- 2. There are no "right" or "wrong" answers to any of these items. The questionnaire is designed to provide information about teachers' professional experiences, opinions, and classroom activities. Remember, "your mathematics class" is the class which is identified on the cover of this questionnaire, and which will be tested as part of TIMSS-R in your school.
- 3. More specific instructions to assist you in responding are found in *italics* for each item. Once you have completed the questionnaire, please return it to the TIMSS-R Coordinator in your school.

Again, thank you for your time, effort, and thought in completing this questionnaire!

ZZMIT	_R R	of No	. 98-	<u>በበ3′</u>

THERE ARE NO QUESTIONS O	N 1	THIS	PAGE.
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Section A

1.	How old are you?	
	Check one	box only.
	under 25	
	25-29	
	30-39	
	40-49	
	50-59	
	60 or more	
2a.	Are you female or male?	
	Check one	box only.
	female	
	male	
2b.	Which best describes you?	
	Check one	box only.
	White (not Hispanic)	
	Black (not Hispanic)	
	Hispanic("Hispanic" means someone who is Mexican, Mexican American, Chicano, Puerto Rican, Cuban, or from some other Spanish or Hispanic background.)	
	Asian or Pacific Islander ("Asian or Pacific Islander" means someone who is Chinese, Japanese, Korean, Filipino, Vietnamese, Asian American, or from some other Asian or Pacific Island background.)	
	American Indian or Alaskan Native ("American Indian or Alaskan Native" means someone who is	
	from one of the American Indian tribes, or one of the original people of Alaska.)	
	Other (specify)	

3.	-	By the end of this school year, how many years will you have been teaching altogether?					
		Please round to the nearest whole number					
4.		one typical calendar week from Monday to Sunday, for how many single iods are you formally scheduled in one school week altogether?					
		Write in number periods					
5.	per	one typical calendar week from Monday to Sunday, for how many single riods are you formally scheduled to teach each of the following bjects?					
		Count a double period as two single periods Write zero if none					
		Number of single periods					
	a)	mathematics					
	b)	general science					
	c)	other subjects					
6.		one typical calendar week from Monday to Sunday, for how many single iods are you formally scheduled to perform each of the following tasks? Count a double period as two single periods Write zero if none Number of single periods					
	a)	student supervision (other than teaching)					
	b)	student counseling/appraisal					
	c)	administrative duties					
	d)	individual curriculum planning					
	e)	cooperative curriculum planning					
	f)	other non-student contact time (i.e., use not specified)					

8.

7.	APPROXIMATELY how many hours per week do you normally spend on
	each of the following activities outside the formal school day?
	Do not include time already accounted for in Question # 6.

Check one box in each row. Less More 1 - 2 3 - 4 than 1 than 4 None hour hours hours hours preparing or grading student tests or exams a) reading and grading other student work b) planning lessons by yourself..... c) d) meeting with students outside of classroom time (e.g., tutoring, guidance)..... meeting with parents..... f) professional reading and development activity (e.g., seminars, conferences, etc.) keeping students' records up to date..... g) h) administrative tasks including staff meetings (e.g., photocopying, displaying students' work)... other i) APPROXIMATELY how many hours per week do you normally spend on your teaching activities altogether (include time spent in and out of school)? Please round to the nearest whole hour.

9.		About how often do you have meetings with other teachers in your subject rea to discuss and plan curriculum or teaching approaches?					
	Check one b						
		never				. 🗆	
		once or twice a year		•••••	•••••	. 🗆	
		every other month				. 🗆	
		once a month				. 🗆	
		once a week				. 🗆	
		two or three times a week				. 🗆	
		almost every day				. 🗆	
10.	Hov	w much influence do you have on each of the		_			
					in each row		
			None	e Little	e Some	A lot	
	a)	subject matter to be taught	Ц	Ц	Ц	Ц	
	b)	specific textbooks to be used					
	c)	the amount of money to be spent on supplies					
	d)	what supplies are purchased					
11.		be good at mathematics at school, how important	porta	nt do yo	u think it	is for	
				Check one	box in each	n row.	
				Not important	Somewhat important	Very important	
	a)	remember formulas and procedures		. 🗆			
	b)	think in a sequential and procedural manner		. 🗆			
	c)	understand mathematical concepts, principles, and strategies		. 🗆			
	d)	be able to think creatively		. 🗆			
	e)	understand how mathematics is used in the real w	orld .	. 🗆			
	f)	be able to provide reasons to support their solution	ns	. 🗆			

12. To what extent do you agree or disagree with each of the following statements?

		Check one box in each row.					
		Strongly disagree	Disagree	Agree	Strongly agree		
a)	Mathematics is primarily an abstract subject						
b)	Mathematics is primarily a formal way of representing the real world.						
c)	Mathematics is primarily a practical and structure guide for addressing real situations						
d)	If students are having difficulty, an effective approach is to give them more practice by themselves during the class.						
e)	Some students have a natural talent for mathematics and others do not.						
f)	More than one representation (picture, concrete material, symbol set, etc.) should be used in teaching a mathematics topic.						
g)	Mathematics should be learned as sets of algorithms or rules that cover all possibilities						
h)	Basic computational skills on the part of the teacher are sufficient for teaching elementary school mathematics.						
i)	A liking for and understanding of students are essential for teaching mathematics.						

13. Indicate your familiarity with each of the following documents:

			Check on				
			No such document	Not familiar	Fairly familiar	Very familiar	
	a)	National Council of Teachers of Mathematics (NCTM) Professional Standards for Teaching Mathematics	. 🗆				
	b)	State Education Department Curriculum Guide .	. 🗆				
	c)	School District Curriculum Guide	. 🗆				
	d)	School Curriculum Guide	. 🗆				
	e)	The National Assessment for Educational Progress (NAEP) Assessment Frameworks/ Specifications	. 🗆				
	f)	State Education Department Assessment Specifications	. 🗆				
14.	Hov	w well prepared do you feel you are to tead	h				
			Check one	e box in ea	ch row.		
			I do not teach these topics	Not well prepared	Somewhat prepared		
	a)	fractions, decimals, and percentages?	. 🗆				
	b)	ratios and proportions?	. 🗆				
	c)	measurement – units, instruments, and accuracy?	. 🗆				
	d)	perimeter, area, and volume?	. 🗆				
	e)	geometric figures – definitions and properties?	. 🗆				
	f)	geometric figures – symmetry, motions and transformations, congruence and similarity?					
	g)	coordinate geometry?	. 🗆				
	h)	algebraic representation?	. 🗆				
	i)	evaluate and perform operations on algebraic expressions?	. 🗆				
	j)	solving linear equations and inequalities?	. 🗆				
	k)	representation and interpretation of data in graphs, charts, and tables?	. 🗆				
	1)	simple probabilities – understanding and calculations?	. 🗆				

15.	What is the highest level of formal education you have completed?						
	Check one box only.						
	Did not complete secondary school						
	Secondary school only						
	Bachelor's degree or equivalent						
	Master's degree or PhD						
16a.	Do you have a teacher training certificate?						
	Check one box only						
16b.	How many years of pre-service teacher training have you had?						
	Please round to the nearest whole number						
16c.	If you have had pre-service teacher training, did you begin this training in secondary school?						
	Check one box only						

17.		ile studying to obtain your bachelor's degree or equivalen ir major or main area of study?	it, what w	/as
	I do	o not have a bachelor's degree or equivalent	🗆	
		Check o	ne box in e	ach row.
			Yes	No
	a)	Mathematics		
	b)	Biology		
	c)	Physics		
	d)	Chemistry		
	e)	Education		
	f)	Mathematics Education		
	g)	Science Education		
	h)	Other		
18.		ou have a master's degree, what was your major or main a not have a master's degree.		udy?
		(Check the box and skip to the next question.)	ne box in e	ach row
		Check v	ne box in e	uch row.
			Yes	No
	a)	Mathematics		
	b)	Biology		
	c)	Physics		
	d)	Chemistry		
	e)	Education		
	f)	Mathematics Education		
	g)	Science Education		
	h)	Other		

Section B

In this section, many of the questions refer to **your mathematics class**. Please remember that this is the class which is identified on the cover of this questionnaire, and which will be tested as part of TIMSS-R in your school.

1.	Write in a number for each. Write 0 (zero) if there of	ire none.
	boys girls	
2.	What subject matter do you emphasize most in your mathematics class	
	general mathematics (e.g., whole numbers,	J
	fractions, decimals, percentages, etc.)	
	geometry	
	algebra	
	combined algebra and geometry	
	combined algebra, geometry, numbers, etc.	
	other, please specify	
3.	How many minutes per week do you teach mathematics to your mathematics class? in the number of minutes.	Write
	Minutes:	
4a.	Do you use a textbook in teaching mathematics to your class?	
	Check one b	oox.
	Yes \square	No 🗆
4b.	If yes, approximately what percentage of your weekly mathematics teatime is based on your mathematics textbook?	aching
	Check	one box.
	0-25%	
	26-50%	
	51-75%	
	76-100%	

5.		the students in your mathematics ring mathematics lessons?	class ha	ve calcu	lators a	ıvailab	le to use	
					(Check on	e box only.	
					3	Yes 🗆	No □	
6.		what extent are the students in yo culators during mathematics lesso		ematics c				
							e box only.	
		unrestricted use		•••••			. 🗆	
		restricted use		•••••			. 🗆	
		calculators are not permitted			•••••	•••••	. 🗆	
7.		w often do students in your mathe owing activities?	matics c	lass use	calcula	itors fo	or the	
			Check on	e box in eac	ch row.			
			Almost every class	Once or twice a week	Onc twic mor	e a	Never, or hardly ever	
	a)	Checking answers			Ε]		
	b)	Tests and exams]		
	c)	Routine computation]		
	d)	Solving complex problems]		
	e)	Exploring number concepts						
8.		the students in your mathematics	class ha	ve comp	uters a	vailabl	e to use	
	aui	ring mathematics lessons?		Check on	e box in	each row.		
				Never or almost never	Some lessons	Most lessons	Every lesson	
	a)	in the classroom						
	b)	in other instructional rooms (computer science lab, reading lab, library, etc.)						
	If c	omputers are available,				_		
	c)	do any of the computers have access to the Internet?				Yes	No	
	d)	do you use the Internet for instructional/educational purposes?						

9. In planning mathematics lessons, what is your main source of written information when...

Check one box in each row.

				·	ileen o.			
	State or District Examination Specifications							
		State or School District Curriculum Guide						
		School Curriculum Guide	e					
		Teacher Edition of Textb	ook					
		Student Edition of Textbo	ook					
		Other Resource Books						
a)	deciding which topics to te	each (goals)						
b)	deciding how to present a	opic						
c)	selecting problems and exe work in class and homewo							
d)	selecting problems and appassessment and evaluation							
_								
-	our mathematics lesso following?	ns, how often do yo	u usu	ially	ask s	tuder	its to	o do
	J		Check (one bo	ox in e a	ıch rov	v.	
			Never o almos never	t S	Some essons	Mo lesso		Every lesson
a)	explain the reasoning behi	nd an idea						
b)	represent and analyze relatables, charts, or graphs							
c)	work on problems for whi immediately obvious meth							
d)	use computers to solve exc	ercises or problems						
e)	write equations to represen	nt relationships						
f)	practice computational ski	lls						
g)	use graphing calculators to or problems							

10.

11.	In n	nathematics lessons, how often do studen	ts				
		Check one box in each					
			Never or almost never	Some lessons	Most lessons	Every lesson	
	a)	work individually without assistance from the teacher	. 🗆				
	b)	work individually with assistance from the teacher	. 🗆				
	c)	work together as a class with the teacher teaching the whole class	. 🗆				
	d)	work together as a class with students responding to one another	_				
	e)	work in pairs or small groups without assistance from the teacher	. 🗆				
	f)	work in pairs or small groups with assistance from the teacher	. 🗆				
12.		typical month of lessons for your mathem ime is spent on each of the following activ		Wri	at perce	centage	
				joi	The tot	al should	
	a)	administrative tasks (not related to lesson's cont	tent/purpo	se)		<i>o 100%</i> %	
	b)	homework review				%	
	c)	lecture-style presentation by teacher				%	
	d)	teacher-guided student practice	•••••			%	
	e)	re-teaching and clarification of content/procedur	res			%	
	f)	student independent practice				%	
	g)	tests and quizzes				%	
	h)	other				%	

13. The following list includes the main topics addressed by the TIMSS-R mathematics test. Check the response that describes when students in your mathematics class have been taught each topic.

If a topic has been taught before this year and also in the current year, check the two boxes that apply. Otherwise, check **one** box in **each row**.

		Taught before this year	Taught 1-5 periods this year	Taught more than 5 periods this year	Not yet taught	I do not knov
a) Fr	actions and Number Sense					
1)	Whole numbers – including place values, factoring and operations $(+, -, \times, \div)$	🗆				
2)	Understanding and representing common fractions	🗆				
3)	Computations with common fractions	🗆				
4)	Understanding and representing decimal fractions	🗆				
5)	Computations with decimal fractions	🗆				
6)	Relationships between common and decimal fractions, ordering of fractions	🗆				
7)	Rounding whole numbers and decimal fractions	🗆				
8)	Estimating the results of computations	🗆				
9)	Number lines	🗆				
10)	Computations with percentages and problems involving percentages	🗆				
11)	Simple computations with negative numbers	🗆				
12)	Square roots (of perfect squares less than 144), small integer exponents	🗆				
b) M	easurement					
13)	Units of measurement; standard metric units.	🗆				
14)	Reading measurement instruments	🗆				
15)	Estimates of measurement; accuracy of measurement	🗆				
16)	Perimeter and area of simple shapes – triangle, rectangles, and circles	🗆				
17)	Perimeter and area of combined shapes	🗆				
18)	Volume of rectangular solids – i.e., Volume = length \times width \times height	🗆				

If a topic has been taught before this year and also in the current year, check the two boxes that apply.
Otherwise, check one box in each row.

c) G	eometry	Taught before this year	Taught 1-5 periods this year	Taught more than 5 periods this year	Not yet taught	I do not know
,	Cartesian coordinates of points in a plane	🗆				
20)	Coordinates of points on a given straight line	- - 🗆				
21)	Simple two dimensional geometry – angles on a straight line, parallel lines, triangles and quadrilaterals	🗆				
22)	Congruence and similarity	🗆				
23)	Symmetry and transformations (reflection and rotation)	🗆				
24)	Visualization of three-dimensional shapes	🗆				
d) P	roportionality					
25)	Scales applied to maps and models	🗆				
26)	Concepts of ratio and proportion; ratio and proportion problems	🗆				
e) A	lgebra					
27)	Number patterns and simple relations	🗆				
28)	Simple algebraic expressions	🗆				
29)	Representing situations algebraically; formulas	🗆				
30)	Solving simple equations	🗆				
31)	Solving simple inequalities	🗆				
f) D	ata Representation, Analysis, and Probabili	ity				
32)	Representation and interpretation of data in graphs, charts, and tables	🗆				
33)	Arithmetic mean	🗆				
34)	Simple probabilities – understanding and calculations	🗆				

14. In your view to what extent do the following limit how you teach your mathematics class?

		Check one box in each			
		Not at all	A little	Quite a lot	A great deal
a)	students with different academic abilities				
b)	students who come from a wide range of backgrounds, (e.g., economic, language)				
c)	students with special needs, (e.g., hearing, vision, speech impairment, physical disabilities, mental or emotional/psychological impairment)				
d)	uninterested students				
e)	disruptive students				
f)	parents interested in their children's learning and progress				
g)	parents uninterested in their children's learning and progress				
h)	shortage of computer hardware				
i)	shortage of computer software				
j)	shortage of other instructional equipment for students' use				
k)	shortage of equipment for your use in demonstrations and other exercises				
1)	inadequate physical facilities				
m)	high student/teacher ratio				
n)	low morale among fellow teachers/administrators				
o)	low morale among students				
p)	threat(s) to personal safety or the safety of students				

15.	How often do you usually assign mathematics homework?	
	Check	one box.
	never	
	less than once a week	
	once or twice a week	
	3 or 4 times a week	
	every day	
If "	never," please skip ahead to Question 19.	
16.	If you assign mathematics homework, how many minutes of mathema homework do you usually assign your students?	tics
	(Consider the time it would take an average student in your class.)	
	Check	one box.
	less than 15 minutes	
	15-30 minutes	
	31-60 minutes	
	61-90 minutes	
	more than 90 minutes	

17. If you assign mathematics homework, how often do you assign each of the following kinds of tasks?

		Check one	box in e	each row.	
		Never	Rarely	Sometimes	Always
a)	worksheets or workbook				
b)	problem/question sets in textbook				
c)	reading in a textbook or supplementary materials				
d)	writing definitions or other short writing assignment				
e)	small investigation(s) or gathering data				
f)	working individually on long term projects or experiments				
g)	working as a small group on long term projects or experiments				
h)	finding one or more uses of the content covered				
i)	preparing oral reports either individually or as a small group				
j)	keeping a journal				

do	the following?		·		,
1 (do not assign written homework		••••••	Ц	
		Check o	ne box in	each row.	
		Never	Rarely	Sometimes	Always
a)	record whether or not the homework was completed				
b)	collect, correct and keep assignments				
c)	collect, correct assignments and then return to students				
d)	give feedback on homework to whole class				
e)	have students correct their own assignments in class				
f)	have students exchange assignments and correct them in class				
g)	use it as a basis for class discussion				
h)	use it to contribute towards students' grades or marks				
	assessing the work of the students in your eight do you give each of the following types	s of ass	essmer	-	much
		None	Little	Quite a lot	A great deal
a)	standardized tests produced outside the school				
b)	teacher-made short answer or essay tests that require students to describe or explain their reasoning				
c)	teacher-made multiple choice, true-false and matching tests				
d)	how well students do on homework assignments				
e)	how well students do on projects or practical/laboratory exercises				
f)	observations of students				П

20. How often do you use the assessment information you gather from students to...

	Check one box in eac			ach row.	ch row.		
		None	Little	Quite a lot	A great deal		
a)	provide students' grades or marks?						
b)	provide feedback to students?						
c)	diagnose students' learning problems?						
d)	report to parents?						
e)	assign students to different programs or tracks?						
f)	plan for future lessons?	П	П	П	П		

Section C

Professional Development Activities

The following questions ask about **professional development** you have participated in **related to your mathematics teaching.**

TIN	ACC D	Ref No	08 003
111	/I.S.S-K	Kei No	タカーいいう

THERE ARE NO QUESTIONS ON THIS PAGE.

1.	Since the beginning of the school year 1998, how many complete class periods <i>did you</i> observe other teachers in your school teach mathematics?			
	Write in numberclass (Write zero if none)	periods		
·-	Since the beginning of the school year 1998, how many complete periods <i>did other classroom teachers</i> in your school observe you mathematics?			
	Write in numberclass (Write zero if none)	periods		

3. Since June 1998, how many hours did you spend in each of the following types of professional development related to your mathematics teaching? Do not report professional development in subjects other than mathematics, but do report professional development on general teaching methods applicable to all subjects (e.g., cooperative learning, diversity, or the use of technology.) Treat the types of professional development as mutually exclusive. For example, if you attended a workshop conference, please report the hours either as a workshop or as a conference, but not both.

Write in Number of hours Write 0 (zero) if none. a) Within-district workshops or institutes, focused on a specific topic, provided by or within the district (For private schools, include workshops offered by the school.).....________ b) Courses for college credit c) Out-of-district workshops and institutes, focused on a specific topic, provided outside of the district (For private schools, include workshops offered outside the school.)_______ d) Teacher collaboratives or networks, connecting teachers regionally, state-wide, nationally, or internationally (do not include activities described in questions a through c.).....______ e) Out-of-district conferences, provided by professional organizations, regional centers, the state department of education, etc. f) Immersion or internship activities, in which a teacher spends a concentrated period of time working in a lab or industrial setting with professionals in his subject area. g) Receiving mentoring, coaching, lead teaching, or observation, in a one-on-one situation, usually in the classroom.______ h) Teacher resource center, which provides professional development materials and is staffed by a lead or resource teacher. i) Committees or task forces focusing on curriculum, instruction, *Teacher study groups* that meet regularly, in face-to-face meetings, to further your knowledge in your discipline or k) Other forms of *organized* professional development related to your mathematics teaching. (Do no include reading or other work you have done on your own.) Specify ______.....

4.		eac to y	ce June 1998 through the present, how man the of the following types of <i>individual</i> profest your mathematics teaching? Again, do not not not not not not not not not no	ssional	develop	ment re			
							Write in Number of hours		
						W_{i}	rite 0 if none.		
	a)		lividual research project, in which you examine you lyour students' learning.		_		•		
	b)		lividual learning, in which you read journals or other blications, browse the internet, etc.	-		<u> </u>			
	c)		ner forms of <i>individual</i> professional development rethematics teaching (specify)						
 5.	Overall, to what extent did the professional development you have participated in since June 1998, emphasize each of the following topics?								
				Cneck on	e box in e	acn row. Quite	A great		
				None	Little	a lot	deal		
		a)	Curriculum (e.g., units, texts, standards)						
		b)	Subject-specific teaching methods in mathematics (e.g., methods of teaching fractions or equations)						
		c)	General teaching methods (e.g., cooperative learning or classroom management techniques)						
		d)	Approaches to assessment						
		e)	Use of technology in instruction (e.g., computers, graphing calculators)						
		f)	Strategies for teaching diverse student populations (e.g., students with disabilities, from underrepresented populations, economically disadvantaged, range of abilities)						
		g)	Information on how students learn mathematics.						
		h)	Deepening your knowledge of mathematics	П	П	П	П		
		i)	Leadership development			П	П		
		j)	Other: (please specify)						

Check one box in each row.

6. Did the professional development you participated in since June 1998, focus on developing your capacity to teach any of the following *curriculum content* areas?

Yes No a) Fractions and Number Sense Whole numbers - including place values, factoring, and operations (+,-,x,./.) П 2) Understanding and representing common fractions Computations with common fractions..... 3) 4) Understanding and representing decimal fractions..... П Computations with decimal fractions 5) Relationship between common and decimal fractions; П ordering of fractions 7) Rounding whole numbers and decimal fractions..... П 8) Estimating the results of computations..... Number lines.... 10) Computations with percentages and problems involving П percentages 11) Simple computations with negative numbers 12) Square roots (of perfect squares less than 144), small integer exponents b) Measurement 13) Units of measurement; standard metric units 14) Reading measurement instruments 15) Estimates of measurement; accuracy of measurement 16) Perimeter and area of simple shapes - triangles, rectangles, and circles П 17) Perimeter and area of combined shapes..... 18) Volume of rectangular solids -П i.e., volume = length x width x height

Check one box in each row.

		Yes	No
c) Ge	eometry		
19)	Cartesian coordinates of points in a plane		
20)	Coordinates of points on a given straight line		
21)	Simple two-dimensional geometry - angles on a straight line, parallel lines, triangles, and quadrilaterals		
22)	Congruence and similarity		
23)	Symmetry and transformations (reflection and location)		
24)	Visualization of three-dimensional shapes		
d) Pr	oportionality		
25)	Scales applied to maps and models		
26)	Concepts of ratio and proportion; ratio and proportion problems		
e) A	lgebra		
27)	Number patterns and simple relations		
28)	Simple algebraic expressions		
29)	Representing situations algebraically; formulas		
30)	Solving simple equations		
31)	Soving simple inequalities		
f) Da	ta Representation, Analysis, and Probability		
32)	Representation and interpretation of data in graphs, charts, and tables		
33)	Arithmetic mean		
34)	Simple probabilities - understanding and calculations		

The final two questions refer to your mathematics class . Please remember that this is the
class which is identified on the cover of this questionnaire, and which will be tested as par
of TIMSS-R in your school.

7.	Overall, to what extent have student learning and engagement in your mathematics class improved as a result of changes you introduced based on participation in mathematics-related professional development you participated in since June 1998?						
	Check one box only.						
		None					
		Little					
		Quite a lot					
		A great deal					
		If " <i>none</i> ", please skip to end of	surve	y.			
		· · · · ·		,			
8.		what extent has student learning and engages improved in the following areas as a resi	_	•		natics	
8.	clas	ss improved in the following areas as a resi relopment you participated in since June 19	ult of th	•	ssional	natics	
8.	clas	ss improved in the following areas as a resi relopment you participated in since June 19	ult of th	e profes	ssional	natics A great deal	
8.	clas	ss improved in the following areas as a resi relopment you participated in since June 19	ult of th 998? Check on	e profes	ssional ach row. Quite	A great	
8.	clas	ss improved in the following areas as a resizelopment you participated in since June 19	ult of th)98? Check on None	e profes	esional ach row. Quite a lot	A great deal	
8.	clas dev	ses improved in the following areas as a resign relopment you participated in since June 19 Memorizing facts, definitions and formulas	ult of th)98? Check on None	ne profes ne box in ed Little	ach row. Quite a lot	A great deal □	
8.	a) b)	Memorizing facts, definitions and formulas Understanding concepts	ult of th 998? Check on None	ne profes ne box in ed Little	ach row. Quite a lot	A great deal □	
8.	a) b) c)	Memorizing facts, definitions and formulas Understanding concepts Performing procedures (e.g., calculating, executing algorithms, replicating experiments)	ult of th 998? Check on None	ne profes ne box in ed Little	ach row. Quite a lot	A great deal □	
8.	a) b) c)	Memorizing facts, definitions and formulas Understanding concepts Performing procedures (e.g., calculating, executing algorithms, replicating experiments) Collecting, analyzing, and interpreting data Applying knowledge to solve	None	e profes	ach row. Quite a lot	A great deal □	

THANK YOU for the thought, time, and effort you have put into completing this questionnaire.