





In this booklet you will find questions about:

- You (Section A)
- Your Family and Home (Section B)
- Learning Mathematics (Section C and Section E)
- Your Problem Solving Experiences (Section D)

Please read each question carefully and answer as accurately as you can. In the test, you usually circled your answers. For this questionnaire, you will normally answer by darkening a circle. For a few questions you will need to write a short answer.

If you make a mistake when darkening a circle, erase your mistake and darken the correct circle. If you make a mistake when writing an answer, simply cross it out and write the correct answer next to it.

**In this questionnaire, there are no right or wrong answers. Your answers should be the ones that are right for you.**

You may ask for help if you do not understand something or are not sure how to answer a question.

**Your answers will be combined with answers from other students to calculate totals and averages. All information (or responses) you provide may only be used for statistical purposes and may not be disclosed, or used, in identifiable form for any other purpose except as required by law [Education Science Reform Act of 2002 (ESRA 2002), 20 U.S. Code, Section 9573].**

## SECTION A: ABOUT YOU

ST01

**Q1** What grade are you in?

\_\_\_\_\_ *grade*

ST03

**Q2** When were you born?

*(Please write the month, day and year you were born.)*

\_\_\_\_\_ 19\_\_\_\_\_  
*Month Day Year*

ST04

**Q3** Are you female or male?

*Female Male*

<sub>1</sub>       <sub>2</sub>

USA\_ST116A01

**Q4** Which best describes you?

*(Please darken only one circle.)*

I am Hispanic or Latino.  <sub>1</sub>

I am not Hispanic or Latino.  <sub>2</sub>

**Q5 Which of these categories best describes your race?**

*(Please darken one or more circles.)*

White <sub>1</sub>

Black or African American <sub>1</sub>

Asian <sub>1</sub>

American Indian or Alaska Native <sub>1</sub>

Native Hawaiian or Other Pacific Islander <sub>1</sub>

USA\_ST05N01

**Q6 Did you attend pre-school?**

No <sub>1</sub>

Yes, for one year or less <sub>2</sub>

Yes, for more than one year <sub>3</sub>

USA\_ST05N02

**Q7 Did you attend kindergarten?**

No <sub>1</sub>

Yes <sub>2</sub>

**Q8 How old were you when you started first grade?**

\_\_\_\_\_ *years old*

USA\_ST07N01

**Q9 Have you ever repeated a grade?**

*(Please darken only one circle in each row.)*

	<i>No, never</i>	<i>Yes, once</i>	<i>Yes, twice or more</i>
a) In kindergarten	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>
b) In grades 1-6	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>
c) In grades 7-9	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>
d) In grades 10-12	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>

ST08

**Q10 In the last two full weeks of school, how many times did you arrive late for school?**

*(Please darken only one circle.)*

- None <sub>1</sub>
- One or two times <sub>2</sub>
- Three or four times <sub>3</sub>
- Five or more times <sub>4</sub>

**Q11** In the last two full weeks of school, how many times did you skip a whole school day?

*(Please darken only one circle.)*

None  <sub>1</sub>

One or two times  <sub>2</sub>

Three or four times  <sub>3</sub>

Five or more times  <sub>4</sub>

**Q12** In the last two full weeks of school, how many times did you skip some classes?

*(Please darken only one circle.)*

None  <sub>1</sub>

One or two times  <sub>2</sub>

Three or four times  <sub>3</sub>

Five or more times  <sub>4</sub>

**Q13 What is the highest grade or level of school you expect to complete?**

*(Please darken only one circle.)*

Less than high school  <sub>1</sub>

High school (high school diploma or GED)  <sub>2</sub>

Vocational or technical certificate (such as cosmetology or auto mechanics)  <sub>3</sub>

Associate's degree (2-year degree from a community college)  <sub>4</sub>

Bachelor's degree (4-year college degree)  <sub>5</sub>

Master's degree  <sub>6</sub>

Doctoral or professional degree such as medicine or law  <sub>7</sub>

## SECTION B: ABOUT YOUR FAMILY AND HOME

In this section you will be asked some questions about your family and your home.

Some of the following questions are about your mother and father or those persons who are like a mother or father to you — for example, guardians, step-parents, foster parents, etc.

If you share your time with more than one set of parents or guardians, please answer the following questions for those parents/guardians you spend the most time with.

ST11

### Q14 Who usually lives at home with you?

*(Please darken only one circle in each row.)*

- |   | <i>Yes</i>                         | <i>No</i>                          |
|---|------------------------------------|------------------------------------|
| a) Mother (including stepmother or foster mother) | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| b) Father (including stepfather or foster father) | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| c) Brother(s) (including stepbrothers)            | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| d) Sister(s) (including stepsisters)              | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| e) Grandparent(s)                                 | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| f) Others (e.g., cousin)                          | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |

**Q15 What is your mother's main job?  
(e.g., school teacher, cook, sales manager)**

*(If she is not working now, please tell us her last main job.)*

*Please write in the job title.* \_\_\_\_\_

**Q16 What does your mother do in her main job?  
(e.g., teaches high school students, helps prepare meals in a restaurant, manages a sales team)**

*Please use a sentence to describe the kind of work she does or did in that job.*

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**Q17 What is the highest level of schooling (not including college) completed by your mother?**

*If you are not sure which circle to choose, please ask the test administrator for help.*

*(Please darken only one circle.)*

She completed grade 12 (high school diploma or GED)  <sub>1</sub>

She completed grade 9  <sub>2</sub>

She completed grade 6  <sub>3</sub>

She did not complete grade 6  <sub>4</sub>

**Q18 Does your mother have any of the following degrees, certificates, or diplomas?**

*If you are not sure how to answer this question, please ask the test administrator for help.*

*(Please darken only one circle in each row.)*

- |  | <i>Yes</i>                         | <i>No</i>                          |
|--|------------------------------------|------------------------------------|
| a) Master's, doctoral, or professional degree such as medicine or law                                    | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| b) Bachelor's degree (4-year college degree)   | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| c) Associate's degree (2-year degree from a community college)   | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| d) Vocational or technical certificate/diploma after high school (such as cosmetology or auto mechanics) | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |

**Q19 What is your mother currently doing?**

*(Please darken only one circle.)*

- |                                    |                                    |
|------------------------------------|------------------------------------|
| Working full-time for pay          | <input type="radio"/> <sub>1</sub> |
| Working part-time for pay          | <input type="radio"/> <sub>2</sub> |
| Not working, but looking for a job | <input type="radio"/> <sub>3</sub> |
| Other (e.g., home duties, retired) | <input type="radio"/> <sub>4</sub> |

**Q20 What is your father's main job?  
(e.g., school teacher, cook, sales manager)**

*(If he is not working now, please tell us his last main job.)*

*Please write in the job title.* \_\_\_\_\_

**Q21 What does your father do in his main job?  
(e.g., teaches high school students, helps prepare meals in a  
restaurant, manages a sales team)**

*Please use a sentence to describe the kind of work he does or did in that  
job.*

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**Q22 What is the highest level of schooling (not including college)  
completed by your father?**

*If you are not sure how to answer this question, please ask the test  
administrator for help.*

*(Please darken only one circle.)*

He completed grade 12 (high school  
diploma or GED)  <sub>1</sub>

He completed grade 9  <sub>2</sub>

He completed grade 6  <sub>3</sub>

He did not complete grade 6  <sub>4</sub>

**Q23 Does your father have any of the following degrees, certificates, or diplomas?**

*If you are not sure which circle to choose, please ask the test administrator for help.*

*(Please darken one circle in each row.)*

- |  | <i>Yes</i>                         | <i>No</i>                          |
|--|------------------------------------|------------------------------------|
| a) Master's, doctoral, or professional degree such as medicine or law                                    | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| b) Bachelor's degree (4-year college degree)   | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| c) Associate's degree (2-year degree from a community college)   | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |
| d) Vocational or technical certificate/diploma after high school (such as cosmetology or auto mechanics) | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> |

**Q24 What is your father currently doing?**

*(Please darken only one circle.)*

- |                                    |                                    |
|------------------------------------|------------------------------------|
| Working full-time for pay          | <input type="radio"/> <sub>1</sub> |
| Working part-time for pay          | <input type="radio"/> <sub>2</sub> |
| Not working, but looking for a job | <input type="radio"/> <sub>3</sub> |
| Other (e.g., home duties, retired) | <input type="radio"/> <sub>4</sub> |

**Q25 In what country were you and your parents born?***(Please darken only one circle in each column.)*

	<i>You</i>	<i>Mother</i>	<i>Father</i>
United States*	<input type="radio"/> <sub>01</sub>	<input type="radio"/> <sub>01</sub>	<input type="radio"/> <sub>01</sub>
Other country	<input type="radio"/> <sub>02</sub>	<input type="radio"/> <sub>02</sub>	<input type="radio"/> <sub>02</sub>

\*NOTE: The "United States" refers to the 50 states, District of Columbia, and U.S. military bases abroad.

**Q26 If you were NOT born in the United States, how old were you when you arrived in the United States?***If you were less than 12 months old, please write zero (0).**If you were born in the United States please skip this question and go to Q27.*

\_\_\_\_\_ years old

**Q27 What language do you speak at home most of the time?***(Please darken only one circle.)*

English	<input type="radio"/> <sub>313</sub>
Spanish	<input type="radio"/> <sub>156</sub>
Other language	<input type="radio"/> <sub>859</sub>

**Q28 Which of the following are in your home?***(Please darken only one circle in each row.)*

	<i>Yes</i>	<i>No</i>
a) A desk to study at	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
b) A room of your own	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
c) A quiet place to study	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
d) A computer you can use for school work	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
e) Educational software	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
f) A link to the Internet	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
g) Classic literature (e.g., Shakespeare)	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
h) Books of poetry	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
i) Works of art (e.g., paintings)	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
j) Books to help with your school work	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
k) Technical reference books or manuals	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
l) A dictionary	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
m) A dishwasher	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
n) A DVD player	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
o) A guest room	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
p) A high-speed Internet connection	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>
q) A musical instrument	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>

**Q29** How many of these are there at your home?*(Please darken only one circle in each row.)*

	<i>None</i>	<i>One</i>	<i>Two</i>	<i>Three or more</i>
a) Cell phones	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <sub>4</sub>
b) Televisions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <sub>4</sub>
c) Computers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <sub>4</sub>
d) Cars	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <sub>4</sub>
e) Bathrooms with a bathtub or shower	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> <sub>4</sub>

**Q30** How many books are there in your home?*There are usually about 15 books per foot of shelving. Do not include magazines, newspapers, or your schoolbooks.**(Please darken only one circle.)*

0-10 books	<input type="radio"/> <sub>1</sub>
11-25 books	<input type="radio"/> <sub>2</sub>
26-100 books	<input type="radio"/> <sub>3</sub>
101-200 books	<input type="radio"/> <sub>4</sub>
201-500 books	<input type="radio"/> <sub>5</sub>
More than 500 books	<input type="radio"/> <sub>6</sub>

**SECTION C: ABOUT LEARNING MATHEMATICS**

ST29

**Q31 Thinking about your views on mathematics: to what extent do you agree with the following statements?***(Please darken only one circle in each row.)*

	<i>Strongly agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>
a) I enjoy reading about mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) Making an effort in mathematics is worth it because it will help me in the work that I want to do later on.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) I look forward to my mathematics lessons.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) I do mathematics because I enjoy it.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) Learning mathematics is worthwhile for me because it will improve my career prospects.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) I am interested in the things I learn in mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
g) Mathematics is an important subject for me because I need it for what I want to study later on.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
h) I will learn many things in mathematics that will help me get a job.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q32 Thinking about how people important to you view mathematics: how strongly do you agree with the following statements?**

*(Please darken only one circle in each row.)*

	<i>Strongly agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>
a) Most of my friends do well in mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) Most of my friends work hard at mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) My friends enjoy taking mathematics tests.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) My parents believe it's important for me to study mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) My parents believe that mathematics is important for my career.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) My parents like mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q33 How confident do you feel about having to do the following mathematics tasks?**

*(Please darken only one circle in each row.)*

	<i>Very confident</i>	<i>Confident</i>	<i>Not very confident</i>	<i>Not at all confident</i>
a) Using a train schedule to figure out how long it would take to get from one place to another.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) Calculating how much cheaper a TV would be after a 30% discount.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) Calculating how many square feet of tile you need to cover a floor.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) Understanding graphs presented in newspapers.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) Solving an equation like $3x+5=17$ .	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) Finding the actual distance between two places on a map with a 1:10,000 scale.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
g) Solving an equation like $2(x+3) = (x+3)(x-3)$ .	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
h) Calculating the gas mileage of a car.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q34 Thinking about your mathematics lessons: to what extent do you agree with the following statements?**

*(Please darken only one circle in each row.)*

	<i>Strongly agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>
a) If I put in enough effort I can succeed in mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) Whether or not I do well in mathematics is completely up to me.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) Family demands or other problems prevent me from putting a lot of time into my mathematics work.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) If I had different teachers I would try harder in mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) If I wanted to I could do well in mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) I do badly in mathematics whether or not I study for my exams.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q35** Suppose that you are a student in the following situation:

*Each week, your mathematics teacher gives a short quiz. Recently you have done badly on these quizzes. Today you are trying to figure out why.*

**How likely are you to have these thoughts or feelings in this situation?**

*(Please darken only one circle in each row.)*

	<i>Very likely</i>	<i>Likely</i>	<i>Slightly likely</i>	<i>Not at all likely</i>
a) I'm not very good at solving mathematics problems.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) My teacher did not explain the concepts well this week.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) This week I guessed badly on the quiz.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) Sometimes the course material is too hard.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) The teacher did not get students interested in the material.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) Sometimes I am just unlucky.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q36 Thinking about the mathematics you do for school: to what extent do you agree with the following statements?**

*(Please darken only one circle in each row.)*

	<i>Strongly agree</i>	<i>Agree</i>	<i>Disagree</i>	<i>Strongly disagree</i>
a) I have my homework finished in time for mathematics class.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) I work hard on my mathematics homework.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) I am prepared for my mathematics exams.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) I study hard for mathematics quizzes.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) I keep studying until I understand mathematics material.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) I pay attention in mathematics class.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
g) I listen in mathematics class.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
h) I avoid distractions when I am studying mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
i) I keep my mathematics work well organized.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q37 For each pair of statements, please choose the item that best describes you.**

*a) Please darken only one of the following two circles.*

<sub>1</sub> I intend to take additional mathematics courses after I finish high school.

<sub>2</sub> I intend to take additional English courses after I finish high school.

*b) Please darken only one of the following two circles.*

<sub>1</sub> I plan on majoring in a subject in college that requires mathematics skills.

<sub>2</sub> I plan on majoring in a subject in college that requires science skills.

*c) Please darken only one of the following two circles.*

<sub>1</sub> I am willing to study harder in my mathematics classes than is required.

<sub>2</sub> I am willing to study harder in my English classes than is required.

*d) Please darken only one of the following two circles.*

<sub>1</sub> I plan on taking as many mathematics classes as I can during my education.

<sub>2</sub> I plan on taking as many science classes as I can during my education.

*e) Please darken only one of the following two circles.*

<sub>1</sub> I am planning on pursuing a career that involves a lot of mathematics

<sub>2</sub> I am planning on pursuing a career that involves a lot of science.

**Q38 How often do you do the following things at school and outside of school?**

*(Please darken only one circle in each row.)*

	<i>Always or almost always</i>	<i>Often</i>	<i>Sometimes</i>	<i>Never or rarely</i>
a) I talk about mathematics problems with my friends.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) I help my friends with mathematics.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) I do mathematics as an extracurricular activity.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) I take part in mathematics competitions.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) I do mathematics more than 2 hours a day outside of school.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) I play chess.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
g) I program computers.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
h) I participate in a mathematics club.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

## SECTION D: ABOUT YOUR PROBLEM SOLVING EXPERIENCES

ST93

**Q39** How well does each of the following statements describe you?

*(Please darken only one circle in each row.)*

	<i>Very much like me</i>	<i>Mostly like me</i>	<i>Somewhat like me</i>	<i>Not much like me</i>	<i>Not at all like me</i>
a) When confronted with a problem I give up easily.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
b) I put off difficult problems.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
c) I remain interested in the tasks that I start.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
d) I continue working on tasks until everything is perfect.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
e) When confronted with a problem I do more than what is expected of me.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>

**Q40 How well does each of the following statements describe you?***(Please darken only one circle in each row.)*

	<i>Very much like me</i>	<i>Mostly like me</i>	<i>Somewhat like me</i>	<i>Not much like me</i>	<i>Not at all like me</i>
a) I can handle a lot of information.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
b) I am quick to understand things.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
c) I seek explanations for things.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
d) I can easily link facts together.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
e) I like to solve complex problems.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>

ST96

**Q41** *Suppose that you have been sending text messages from your cell phone for several weeks. Today, however, you can't send text messages. You want to try to solve the problem.*

**What would you do? For each suggestion, darken the option that best applies to you.**

*(Please darken only one circle in each row.)*

	<i>I would definitely do this</i>	<i>I would probably do this</i>	<i>I would probably not do this</i>	<i>I would definitely not do this</i>
a) I press every button possible to find out what is wrong.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) I think about what might have caused the problem and what I can do to solve it.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) I read the manual.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) I ask a friend for help.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q42** Suppose that you are planning a trip to the zoo with your brother. You don't know which route to take to get there.

**What would you do? For each suggestion, darken the option that best applies to you.**

*(Please darken only one circle in each row.)*

	<i>I would definitely do this</i>	<i>I would probably do this</i>	<i>I would probably not do this</i>	<i>I would definitely not do this</i>
a) I read the zoo brochure to see if it says how to get there.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) I study a map and figure out the best route.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) I leave it to my brother to worry about how to get there.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) I know roughly where it is, so I suggest we just start driving.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q43** *Suppose that you arrive at the train station. There is a ticket machine that you have never used before. You want to buy a ticket.*

**What would you do? For each suggestion, darken the option that best applies to you.**

*(Please darken only one circle in each row.)*

	<i>I would definitely do this</i>	<i>I would probably do this</i>	<i>I would probably not do this</i>	<i>I would definitely not do this</i>
a) I check how similar it is to other ticket machines I have used.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) I try out all the buttons to see what happens.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) I ask someone for help.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) I try to find a ticket office at the station to buy a ticket.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

## SECTION E: MORE QUESTIONS ABOUT LEARNING MATHEMATICS

ST53

**Q44** For each group of three items, please choose the item that best describes your approach to mathematics.

*a) Please darken only one of the following three circles.*

- <sub>1</sub> When I study for a mathematics test, I try to figure out what are the most important parts to learn.
- <sub>2</sub> When I study for a mathematics test, I try to understand new concepts by relating them to things I already know.
- <sub>3</sub> When I study for a mathematics test, I learn as much as I can by heart.

*b) Please darken only one of the following three circles.*

- <sub>1</sub> When I study mathematics, I try to figure out which concepts I still do not understand completely.
- <sub>2</sub> When I study mathematics, I think of new ways to get the answer.
- <sub>3</sub> When I study mathematics, I make myself check to see if I remember the work I have already done.

*c) Please darken only one of the following three circles.*

- <sub>1</sub> When I study mathematics, I try to relate the work to things I have learned in other subjects.
- <sub>2</sub> When I study mathematics, I start by working out exactly what I need to learn.
- <sub>3</sub> When I study mathematics, I go over some problems so often that I feel as if I could solve them in my sleep.

*d) Please darken only one of the following three circles.*

- <sub>1</sub> In order to remember the method for solving a mathematics problem, I go through examples again and again.
- <sub>2</sub> I think about how the mathematics I have learned can be used in everyday life.
- <sub>3</sub> When I cannot understand something in mathematics, I always search for more information to clarify the problem.

**Q45 How many hours do you typically spend per week attending out-of-school-time lessons in the following subjects?**

*These are only lessons in subjects that you are also learning at school, that you spend extra time learning outside of normal school hours. The lessons may be given at your school, at your home or somewhere else.*

*(Please darken only one circle in each row.)*

	<i>I do not attend out- of-school- time lessons in this subject</i>	<i>Less than 2 hours a week</i>	<i>2 or more but less than 4 hours a week</i>	<i>4 or more but less than 6 hours a week</i>	<i>6 or more hours a week</i>
a) English (e.g., language arts, literature, writing)	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
b) Mathematics	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
c) Science	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
d) Other subjects	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>

**Q46 Thinking about all school subjects: on average, how many hours do you spend each week on the following?**

*When answering, include time spent on the weekend too.*

- a) Homework or other material assigned by your teachers \_\_\_\_\_ *hours per week*
- b) Out of the time spent in (a), how many hours do you work on your homework with somebody overlooking and providing help if necessary (“guided homework”), either at school or elsewhere? \_\_\_\_\_ *hours per week*
- c) Work with a personal tutor (whether paid or not) \_\_\_\_\_ *hours per week*
- d) Attend out of school classes organized by a commercial company and paid for by your parents \_\_\_\_\_ *hours per week*
- e) Study with a parent or other family member \_\_\_\_\_ *hours per week*
- f) Practice content from school lessons by working on a computer (e.g., learn vocabulary with training software) \_\_\_\_\_ *hours per week*

**Q47 How often have you encountered the following types of mathematics tasks during your time at school?**

*(Please darken only one circle in each row.)*

	<i>Frequently</i>	<i>Sometimes</i>	<i>Rarely</i>	<i>Never</i>
a) Figuring out from a train schedule how long it would take to get from one place to another.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) Calculating how much more expensive a computer would be after adding tax.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
c) Calculating how many square feet of tile you need to cover a floor.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
d) Understanding scientific tables presented in an article.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
e) Solving an equation like $6x^2 + 5 = 29$ .	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
f) Finding the actual distance between two places on a map with a 1:10,000 scale.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
g) Solving an equation like $2(x+3) = (x+3)(x-3)$ .	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
h) Calculating the power consumption of an electronic appliance per week.	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
i) Solving an equation like $3x + 5 = 17$ .	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q48 Thinking about mathematical concepts: how familiar are you with the following terms?**

*(Please darken only one circle in each row.)*

	<i>Never heard of it</i>	<i>Heard of it once or twice</i>	<i>Heard of it a few times</i>	<i>Heard of it often</i>	<i>Know it well, understand the concept</i>
a) Exponential Function	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
b) Divisor	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
c) Quadratic Function	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
d) Proper Number	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
e) Linear Equation	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
f) Vectors	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
g) Complex Number	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
h) Rational Number	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
i) Radicals	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
j) Subjunctive Scaling	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
k) Polygon	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
l) Declarative Fraction	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
m) Congruent Figure	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
n) Cosine	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
o) Arithmetic Mean	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>
p) Probability	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>	<input type="radio"/> <sub>5</sub>

**Q49** How many minutes, on average, are there in a class period for the following subjects?

- a) Minutes in a class period in English (e.g., language arts, literature, writing): \_\_\_\_\_ *minutes*
- b) Minutes in a class period in mathematics: \_\_\_\_\_ *minutes*
- c) Minutes in a class period in science: \_\_\_\_\_ *minutes*

ST70

**Q50** How many class periods per week do you typically have for the following subjects?

- a) Number of class periods per week in English (e.g., language arts, literature, writing): \_\_\_\_\_ *class periods*
- b) Number of class periods per week in mathematics: \_\_\_\_\_ *class periods*
- c) Number of class periods per week in science: \_\_\_\_\_ *class periods*

ST71

**Q51** In a normal, full week at school, how many class periods do you have in total?

Number of **ALL** class periods \_\_\_\_\_ *class periods*

ST72

**Q52** On average, about how many students attend your English class (e.g., language arts, literature, writing)?

\_\_\_\_\_ *students*

The next four questions are about your experience with different kinds of mathematics problems at school. You will see descriptions of problems and gray-colored boxes, each containing a mathematics problem.

**Please read each problem. You do NOT need to solve it.**

ST73

- Q53** *In this box are two problems. Each requires you to understand a problem written in text and perform the appropriate calculations. Usually the problem talks about practical situations, but the numbers, people and places mentioned are made up. All the information you need is given. Here are two examples.*

- 1) Ann is two years older than Betty and Betty is four times as old as Sam. When Betty is 30, how old is Sam?
- 2) Mr. Smith bought a television and a bed. The television cost \$625 but he got a 10% discount. The bed cost \$200. He paid \$20 for delivery. How much money did Mr. Smith spend?

**We want to know your experience with this type of word problem at school. Do not solve them!**

*(Please darken only one circle in each row.)*

- |   | <i>Frequently</i>                  | <i>Sometimes</i>                   | <i>Rarely</i>                      | <i>Never</i>                       |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| a) How often have you encountered this type of problem in your <b>mathematics lessons</b> ?           | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> | <input type="radio"/> <sub>3</sub> | <input type="radio"/> <sub>4</sub> |
| b) How often have you encountered this type of problem in the <b>tests you have taken at school</b> ? | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> | <input type="radio"/> <sub>3</sub> | <input type="radio"/> <sub>4</sub> |

**Q54** *Below are examples of another type of mathematics problem.*

- 1) Solve  $2x + 3 = 7$ .  
 2) Find the volume of a box with sides 3m, 4m and 5m.

**We want to know about your experience with this type of problem at school. Do not solve them!**

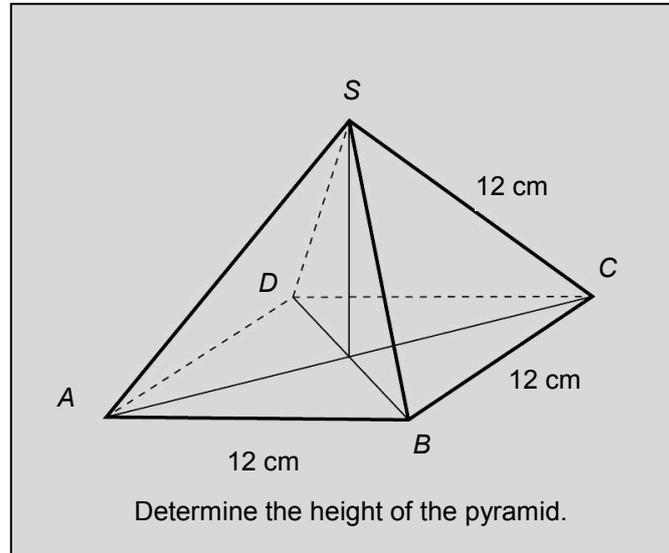
*(Please darken only one circle in each row.)*

- |   | <i>Frequently</i>                  | <i>Sometimes</i>                   | <i>Rarely</i>                      | <i>Never</i>                       |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| a) How often have you encountered this type of problem in your <b>mathematics lessons</b> ?           | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> | <input type="radio"/> <sub>3</sub> | <input type="radio"/> <sub>4</sub> |
| b) How often have you encountered this type of problem in the <b>tests you have taken at school</b> ? | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> | <input type="radio"/> <sub>3</sub> | <input type="radio"/> <sub>4</sub> |

**Q55**

*In the next type of problem, you have to use mathematical knowledge and draw conclusions. There is no practical application provided. Here are two examples.*

1) *Here you need to use geometrical theorems:*



2) *Here you have to know what a prime number is:*

If  $n$  is any number: can  $(n+1)^2$  be a prime number?

**We want to know about your experience with this type of problem at school. Do not solve them!**

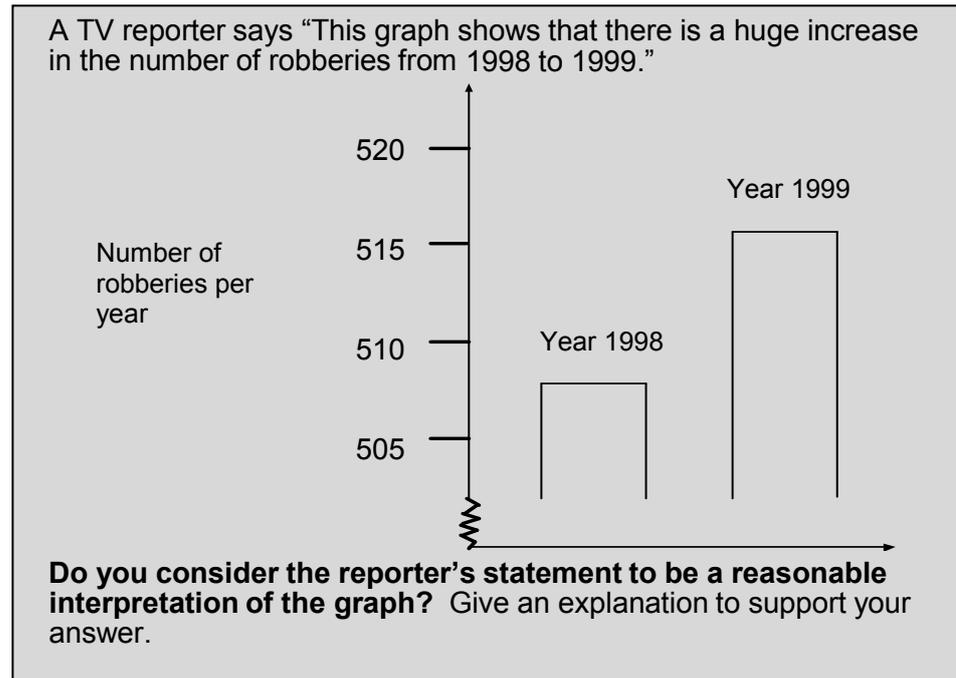
*(Please darken only one circle in each row.)*

	Frequently	Sometimes	Rarely	Never
a) How often have you encountered this type of problem in your <b>mathematics lessons</b> ?	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>
b) How often have you encountered this type of problem in the <b>tests you have taken at school</b> ?	<input type="radio"/> <sub>1</sub>	<input type="radio"/> <sub>2</sub>	<input type="radio"/> <sub>3</sub>	<input type="radio"/> <sub>4</sub>

**Q56**

*In this type of problem, you have to apply suitable mathematical knowledge to find a useful answer to a problem that arises in everyday life or work. The data and information are about real situations. Here are two examples.*

*Example 1:*



*Example 2:*

For years the relationship between a person's recommended maximum heart rate and the person's age was described by the following formula:

$$\text{Recommended maximum heart rate} = 220 - \text{age}$$

Recent research showed that this formula should be modified slightly. The new formula is as follows:

$$\text{Recommended maximum heart rate} = 208 - (0.7 \times \text{age})$$

From which age onwards does the recommended maximum heart rate increase as a result of the introduction of the new formula? Show your work.

**We want to know about your experience with this type of problem at school. Do not solve them!**

*(Please darken only one circle in each row.)*

- |   | <i>Frequently</i>                  | <i>Sometimes</i>                   | <i>Rarely</i>                      | <i>Never</i>                       |
|---|------------------------------------|------------------------------------|------------------------------------|------------------------------------|
| a) How often have you encountered this type of problem in your <b>mathematics lessons</b> ?           | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> | <input type="radio"/> <sub>3</sub> | <input type="radio"/> <sub>4</sub> |
| b) How often have you encountered this type of problem in the <b>tests you have taken at school</b> ? | <input type="radio"/> <sub>1</sub> | <input type="radio"/> <sub>2</sub> | <input type="radio"/> <sub>3</sub> | <input type="radio"/> <sub>4</sub> |

***Thank you very much for your cooperation  
in completing this questionnaire!***