

USER GUIDE FOR MATH 10 ITEM-LEVEL REPORTS

The purpose of this guide is to assist educators in interpreting and understanding the incorrect responses made by Grade 10 students on their Principles of Mathematics exam. Exam items are designed to target a specific content area while giving the student a number of choices to select as the *correct response*. *Incorrect responses*, also known as 'distractors', are designed to represent plausible errors in students' understanding at the level of content or process knowledge. For instance, if more than 20% of students select a specific plausible error, teachers and administrators know that this is an area of concern that may need attention. With the new variable cut-off feature, one can select a report cut off of 10%, 15%, or 20%.

There are four types of items: multiple choice, true/false, matching, and numerical responses.

- **Multiple-choice** exam questions are designed to target a specific content area while giving the student four choices to select as the correct response.
- **True/False** exam questions are designed to target a specific content area while giving the student two choices to select as the correct response.
- **Matching** exam questions require the student to choose appropriate answers from a list for a series of items (in general four to six items).
- **Numerical response** exam questions require the student to solve a problem and obtain a numerical value.

Item-Level Presentation by Domain

The following item-level information is presented in all item-level reports (MC, MT, TF) by domain:

- **Form** – the specific exam form from which items are collected
- **Item #** – item number
- **Question type** – the specific type of question: multiple choice (MC), true/false (TF) or matching item (MT)
- **Prescribed learning outcomes (PLOs)**– the specific curriculum connection for each item.
- **Number of Students Who Responded to the Item**
- **Percentage of Students Who Answered Incorrectly**
- **Specific Curricular Aspect That Needs Attention** – this section identifies specific misconceptions for each item when more than 20% of students (or 10%, 15%) selected an incorrect response. This may indicate either an error or a lack of focus and/or attention in pedagogy.

How to Read an Item-Level Report – MC, MT and TF

Math 10 Item-Level Response Reports, whether at the provincial, district, or school level, contain information on all incorrect responses made by students. Each row in the report represents an item and each column represents a characteristic of that item.

- Column 1 (left): exam form
- Column 2: the exam item number
- Column 3: the question type: MC, TF, or MT
- Column 4: the PLO (A to E)
- Column 5: the total number of students who responded to the item (this may be lower than the total number of students who wrote the exam)
- Column 6: the percentage of students who answered the item incorrectly
- Column 7: a description of students' common misconceptions with regard to the content or process knowledge corresponding to the item in question.

An example of report layout is provided below.

Grade 10 Math: An Item-Level Analysis (District Level)
Patterns and Relations
 School District Mincode: N/A June/2006

Form	Item #	Question type	Prescribed Learning Outcomes	Number of Students who Responded to the Item	Percentage of Students who Answered Incorrectly	Specific Curricular Aspect that Needs Attention [$>20\%$ selected incorrect response]
A	27	MT	C18	115	28	<ul style="list-style-type: none"> • Students incorrectly rearranged the equation and chose the y intercept.
B	5	TF	B3	117	9	N/A
C	25	MC	D10	117	51	*

Notes: (1) '*' indicates that there was no single curricular aspect that needed attention.
 (2) 'N/A' indicates that there were fewer than 20% of the students who incorrectly answered the item; hence, no curricular note is reported.

Item-Level Presentation Numerical Responses

The following item-level information is presented in all item-level NR reports:

- **Form** – the specific exam form from which items are collected
- **Item #** – item number
- **Domain (topic)** – curriculum organizer
- **Prescribed learning outcomes (PLOs)**– the specific curriculum connection for each item.

- **Number of Students Who Responded to the Item**
- **Percentage of Students Who Answered Incorrectly**
- **Specific Curricular Aspect That Needs Attention** – this section describes the steps in obtaining the answer and identifies the likely misconceptions for each item regardless the proportion of incorrect answers. This may indicate either an error or a lack of focus and/or attention in pedagogy.

How to Read an Item-Level Report

Math 10 Item-Level Response Reports, whether at the provincial, district, or school level, contain information on all incorrect responses made by students. Each row in the report represents an item and each column represents a characteristic of that item.

- Column 1 (left): exam form
- Column 2: the exam item number
- Column 3: domain (curriculum organizer)
- Column 4: the PLO (A to E)
- Column 5: the total number of students who responded to the item (this may be lower than the total number of students who wrote the exam)
- Column 6: the percentage of students who answered the item incorrectly
- Column 7: a description of students' common misconceptions with regard to the content or process knowledge corresponding to the item in question.

An example of report layout is provided below.

Grade 10 Science: An Item-Level Analysis (District Level)
Numerical responses
 School District Mincode: N/A June/2006

Form	Item #	Domain	Prescribed Learning Outcomes	Number of Students who Responded to the Item	Percentage of Students who Answered Incorrectly	Specific Curricular Aspect that Needs Attention
A	7	Number	E1	115	28	Students did not know how to manipulate radicals and fractional exponents and/or did not notice that base and exponent match in an exponential equation.

WHAT IS AVAILABLE AT EDUDATA

Provincial-level reports of 2006 Math 10 item-level results can be found on the **Edudata Canada** website.

Districts and schools may download Science 10 Item-Level Response Reports from the **Edudata Canada** website at no cost.

Custom Tabulations Reports

Customized reports may be purchased from **Edudata Canada**. Examples of customized Item-level Response Reports for schools or districts include:

- Gender
- French Immersion
- Aboriginal
- ESL

Reports are not available for school populations of less than five students.

If you are interested in purchasing a customized item-level report, please contact Edudata.

Telephone: 604-822-2338

Fax: 604-822-8818

Email: edudata.canada@ubc.ca