

**Principles of Mathematics 10: Patterns and Relations
Item-Level Response Report (Provincial Level)**

British Columbia

All Schools

June/2009

Provincial Principles of Mathematics 10 Item-Level Response Reports include data for all BC students who wrote the exam in June 2009 (about 26,355 students). Both public and independent schools are included. The Principles of Mathematics 10 June 2009 provincial Item-Level Response Report displays the proportion of students who made errors on each exam item of this domain: Patterns and Relations.

Click [here](#) to view the Prescribed Learning Outcomes

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	16	MC	B1	26332	10%	<ul style="list-style-type: none"> N/A
A	17	MC	B1	26233	24%	<ul style="list-style-type: none"> *
A	18	MC	B2	26257	19%	<ul style="list-style-type: none"> N/A
A	19	MC	B2	26199	77%	<ul style="list-style-type: none"> Students could not find a correct expression for the total number of items in a row pattern forming an arithmetic sequence.
A	21	MC	B12	26309	23%	<ul style="list-style-type: none"> *
A	22	MC	B12	26289	41%	<ul style="list-style-type: none"> *
A	23	MC	B12	26231	47%	<ul style="list-style-type: none"> Students understood how to substitute in a function notation, but made a mistake when

						distributing a coefficient into a binomial.
A	24	MC	B13	26327	69%	<ul style="list-style-type: none"> Students misinterpreted the y-intercept to be the slope of a horizontal line. Students did not recognize that a horizontal line has '0' rather than 'undefined' slope.
A	25	MC	B13	26327	33%	*
A	26	MC	B13	26310	48%	<ul style="list-style-type: none"> Students made an algebraic mistake when converting the equation of a line from standard form to slope-intercept form and did not obtain the correct values for slope and x-intercept.
A	27	MC	B13	26319	59%	<ul style="list-style-type: none"> When given the equation of a horizontal line, students stated the range rather than domain of the graph.
A	28	MC	B14	26241	59%	<ul style="list-style-type: none"> Students did not know how to write the equation of a line in slope-intercept form and find the sign for slope and y-intercept; they matched the equation to a graph with the right slope but the incorrect y-intercept.
A	29	MC	B16	26314	12%	<ul style="list-style-type: none"> N/A
A	31	MC	B4	26317	30%	*
A	32	MC	B4	26257	40%	<ul style="list-style-type: none"> Students incorrectly factored an expression containing a difference of perfect squares by not taking the square roots of the coefficients.

A	34	MC	B5	26310	56%	<ul style="list-style-type: none"> When simplifying an algebraic expression, students made an error because they did not distribute the negative sign to all terms in a bracket.
A	35	MC	B5	26297	29%	*
A	36	MC	B6	26250	52%	<ul style="list-style-type: none"> Students did not recognize the components of a division statement and they thought that the ratio between remainder and divisor was the remainder.
A	37	MC	B6	26261	45%	<ul style="list-style-type: none"> When dividing two polynomials, students did not recognize that the dividend is missing an 'x' term and therefore ended up collecting unlike terms.
A	38	MC	B7	26322	34%	<ul style="list-style-type: none"> When dividing a polynomial to a monomial, students thought that the ratio of two identical terms is '0'.
A	39	MC	B7	26291	39%	*
A	40	MC	B7	26294	43%	*
A	42	MC	B9	26302	27%	*
A	43	MC	B9	26247	57%	<ul style="list-style-type: none"> When dividing two rational expressions, students did not take the reciprocal of the second fraction and made a sign error.
A	44	MC	B9	26003	70%	<ul style="list-style-type: none"> In a word problem involving the addition of two rational expressions, students made an algebraic error by not distributing properly a coefficient into

						<p>a binomial.</p> <ul style="list-style-type: none"> • In a word problem involving the addition of two rational expressions, students added a constant term to the numerator of the second fraction without writing the two expressions with a common denominator. • In a word problem involving the addition of two rational expressions, students incorrectly cancelled the quadratic and constant terms of the top and bottom trinomials and next collected the like terms.
A	45	MC	B10	26219	41%	*

Note:

(1) A description of the misconception is given when more than 20% of students answered the item incorrectly (i.e. selected a distractor).

(2) 'N/A' indicates that fewer than 20% of students answered the item incorrectly. Therefore, no description is provided.

(3) '*' indicates that more than 20% of students answered the item incorrectly, but no single distractor was selected by more than 20% of the students. Therefore, no description is provided.