

SCHOOL REPORT

JUNE 2011

Case Study #1

Table 1
Applied Mathematics 30
Percentage of Students Who Achieved Standards on Their Final Course Mark

Standard	Final Course Mark Representing Standard (%)		Percentage of Students Who Achieved Standard	
	Prov.	School	Prov.	School
Acceptable Standard	50	88.1	88.1	84.8
Standard of Excellence	80	10.7	10.7	15.2
Number of Students Included in Report		5373	33	

Table 2
Applied Mathematics 30
Percentage Distribution of A, B, C, and F,
Averages, and Standard Deviations of Scores

Scores	School-Awarded Mark		Diploma Examination Mark		Final Course Mark	
	Prov.	School	Prov.	School	Prov.	School
A (80 - 100%)	17.2	24.2	9.2	18.2	10.7	15.2
B (65 - 79%)	37.4	27.3	29.6	6.1	35.3	27.3
C (50 - 64%)	36.7	39.4	34.1	42.4	42.1	42.4
F (0 - 49%)	8.7	9.1	27.2	33.3	11.9	15.2
Average Percent Score	65.8	64.2	59.4	57.7	63.0	61.2
Standard Deviation	13.2	15.5	15.5	17.8	12.9	15.2

$$Z = \frac{65.8 - 64.2}{13.2} = -0.12$$

$$Z = \frac{57.7 - 58.5}{15.5} = -0.11$$

$$Z = \frac{61.2 - 63.0}{12.9} = -0.14$$

Please refer to "Guidelines for Interpreting the Diploma Examination Detailed Reports" for suggestions about how to use this report.

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Table 3
Applied Mathematics 30
Percentage of Students Who Achieved Standards on Their Final Course Mark, by Gender

Gender	Students		Students Who Achieved the Acceptable Standard		Students Who Achieved the Standard of Excellence	
	Number	Percent of Total	Number	Percent of Gender	Number	Percent of Gender
Province						
Male	2738	51.0	2405	87.8	286	10.4
Female	2635	49.0	2330	88.4	291	11.0
School						
Male	16	48.5	13	81.3	2	12.5
Female	17	51.5	15	88.2	3	17.6

Table 4
Applied Mathematics 30
Percentage Distribution of A, B, C, and F, Averages, and Standard Deviations of Scores, by Gender

Scores	School-Awarded Mark		Diploma Examination Mark		Final Course Mark			
	Province Male	Province Female	School Male	School Female	Province Male	Province Female	School Male	School Female
A (80 - 100%)	15.6	18.9	18.8	29.4	9.3	9.0	18.8	17.6
B (65 - 79%)	37.3	37.5	18.8	35.3	31.5	27.6	6.3	5.9
C (50 - 64%)	37.1	36.3	43.8	35.3	34.4	33.7	37.5	47.1
F (0 - 49%)	10.0	7.4	18.8	0.0	24.8	29.7	37.5	29.4
Average Percent	65.1	66.5	58.4	69.6	60.1	58.7	55.8	59.4
Standard Deviation	13.3	13.0	17.8	10.9	15.4	15.6	18.7	17.3

$$z = -0.50$$

$$z = +0.24$$

$$z = -0.28$$

$$z = +0.04$$

$$z = -0.43$$

$$z = +0.14$$

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Table 5
Applied Mathematics 30
Average Raw Scores and Standard Deviations, by Item Format

Item Format	Total Marks Possible	Average Raw Score	Prov. School	Standard Deviation	Prov. School
Multiple Choice	33	19.1	18.9	5.3	6.2
Numerical Response	7	3.6	3.0	1.7	1.7

$$Z = \frac{18.9 - 19.1}{5.3} = -0.04$$

$$Z = \frac{3.0 - 3.6}{1.7}$$

$$= -0.35$$

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Table 6
Applied Mathematics 30
Raw Score Results, by Reporting Category

Mathematical Unit	Total Marks		Average Raw Score	Standard Deviation	
	Possible	Prov.	School	Prov.	School
Matrices and Pathways	6	3.5	3.9	1.4	1.7
Finance and Spreadsheets	7	4.0	3.8	1.7	2.0
Statistics and Probability	7	4.0	3.6	1.6	1.7
Vectors	7	3.6	3.5	1.7	1.5
Cyclic, Recursive, and Fractal Patterns	8	4.8	4.3	1.7	1.6
Design	5	2.9	2.8	1.4	1.3
Cognitive Level					
Procedural	14	8.3	7.6	2.5	2.9
Conceptual	13	6.9	6.7	2.5	2.4
Problem Solving	13	7.5	7.7	2.7	2.8

$$Z = \frac{3.9 - 3.5}{1.4} = +0.29$$

$$Z = -0.12$$

$$Z = -0.21$$

$$Z = -0.06$$

$$Z = -0.29$$

$$Z = -0.07$$

$$Z = -0.28$$

$$Z = -0.08$$

$$Z = +0.07$$

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Table 7 - 1
Applied Mathematics 30
Results, Blueprint Classifications, and Item Descriptions, by Item

Item #	% Correct Prov. Sch.	Mathematical Unit	Cognitive Level	Item Description
1	76.1 78.8	CRF	P	Identify the sinusoidal function that best models a set of data. (Outcome 4.1)
2	65.9 39.4	CRF	P	Use a sinusoidal regression equation to determine a particular element in a real-life context. (Outcome 4.2)
NR1	55.3 36.4	CRF	C	Given sinusoidal data, determine a sinusoidal regression equation and use it to calculate a value. (Outcomes 4.1, 4.3)
3	40.1 51.5	CRF	C	Identify an appropriate window setting for a given sinusoidal function. (Outcome 4.3) Standard of Excellence
4	66.1 57.6	CRF	P	Extend a pattern to determine the number of new elements in the third iteration. (Outcome 4.5)
5	54.7 57.6	CRF	PS	Extend a pattern to determine the total length of all line segments in the fifth iteration. (Outcome 4.6)
6	49.4 39.4	CRF	C	Identify the most appropriate type of regression for a set of data. (Outcome 4.4)
7	71.1 72.7	CRF	PS	Extend a pattern to determine the area of the third iteration. (Outcome 4.6)
8	76.5 54.5	SP	P	Determine the total number of different possible daily specials from a given menu. (Outcome 2.4)
9	55.2 54.5	SP	C	Compare the means and the standard deviations for two sets of real-life data. (Outcome 2.1)

Mathematical Unit

MP - Matrices and Pathways
FS - Finance and Spreadsheets
SP - Statistics and Probability
V - Vectors
CRF - Cyclic, Recursive, and Fractal Patterns
D - Design

Cognitive Level

P - Procedural
C - Conceptual
PS - Problem Solving

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Table 7 - 2
Applied Mathematics 30
Results, Blueprint Classifications, and Item Descriptions, by Item

Item #	% Correct Prov. Sch.	Mathematical Unit	Cognitive Level	Item Description
10	48.3 57.6	SP	P	Determine a probability associated with a normal distribution. (Outcome 2.2) Standard of Excellence
NR2	32.8 15.2	SP	P	Calculate the upper limit of a symmetric 95% confidence interval, given the mean and the standard deviation. (Outcome 2.3)
11	67.1 66.7	SP	C	Identify experiments that involve independent events. (Outcome 2.5)
12	64.0 63.6	SP	PS	Calculate a probability associated with a children's game. (Outcome 2.7)
13	56.5 48.5	SP	P	Determine the probability of a compound event. (Outcome 2.6)
14	71.4 69.7	D	PS	Determine the cost of installing galvanized steel on a shed. (Outcome 6.1)
15	46.8 48.5	D	PS	Determine the cost of materials required for a stained-glass project. (Outcome 6.2)
16	49.1 36.4	D	PS	Calculate the cost of sewing lace on a baby quilt. (Outcome 6.4) Standard of Excellence
NR3	50.4 42.4	D	PS	Determine the maximum number of letters that can be put on team uniforms, given a predetermined budget. (Outcome 6.3)
17	67.7 81.8	D	PS	Determine the interior volume of a fuel tank. (Outcome 6.1)

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Table 7 - 3
Applied Mathematics 30
Results, Blueprint Classifications, and Item Descriptions, by Item

Item #	% Correct Prov. Sch.	Mathematical Unit	Cognitive Level	Item Description
18	55.7 57.6	MP	P	Identify the product of a matrix multiplication. (Outcome 1.3)
NR4	46.0 54.5	MP	C	Identify the appropriate dimensions of a matrix, given a matrix operation. (Outcome 1.3)
19	42.8 60.6	MP	C	Identify the appropriate matrix expression for a network problem. (Outcome 1.4)
NR5	64.2 78.8	MP	PS	Determine the placement of four teams in a playoff race. (Outcome 1.4) Standard of Excellence
20	59.9 60.6	MP	PS	Calculate the number of possible license plates, given certain requirements. (Outcome 1.2)
21	77.2 78.8	MP	P	Calculate the number of paths on a grid. (Outcome 1.1)
22	64.5 69.7	V	C	Determine the magnitude and direction of a force after a scalar is applied. (Outcome 5.2)
23	43.4 39.4	V	P	Determine the magnitude of a leg in a vector diagram that has an obtuse angle. (Outcome 5.4)
NR6	56.7 30.3	V	C	Write an angle using bearing notation, given its heading notation. (Outcome 5.1)
24	48.4 48.5	V	PS	Determine the direction of a resultant groundspeed. (Outcome 5.4) Standard of Excellence

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Cognitive Level

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Table 7 - 4
Applied Mathematics 30
Results, Blueprint Classifications, and Item Descriptions, by Item

Item #	% Correct Prov. Sch.	Mathematical Unit	Cognitive Level	Item Description
25	51.4 33.3	V	C	Determine the direction of two forces that results in the smallest possible resultant force. (Outcome 5.4)
26	41.1 57.6	V	PS	Determine the bearing of a ship, given a head-to-tail vector diagram. (Outcome 5.3)
27	53.4 69.7	V	P	Determine the magnitude of a resultant vector, given a vector diagram with a right-angle. (Outcome 5.3)
28	72.8 69.7	FS	C	Identify the correct statement for a consumer scenario. (Outcome 3.3)
29	67.2 60.6	FS	P	Calculate the total interest earned in an investment. (Outcome 3.2)
30	38.6 45.5	FS	C	Identify the investment that has the highest annual rate of return. (Outcome 3.4) Standard of Excellence
NR7	54.2 45.5	FS	P	Calculate the amount saved by choosing one mortgage option over another mortgage option. (Outcome 3.2)
31	51.3 57.6	FS	C	Given exponential data, determine an exponential regression equation and use it to calculate a value. (Outcome 3.3)
32	58.9 48.5	FS	PS	Identify the most appropriate regression equation to model the value of an investment over time. (Outcomes 3.4, 4.4)
33	53.8 57.6	FS	P	Identify the formula that could be used to calculate the value of a spreadsheet cell. (Outcomes 3.1, 3.3)

Mathematical Unit

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Cognitive Level

P - Procedural
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