

RUBRIC FOR PERFORMANCE TASK #1 — ORBITING THE EARTH

Scores and Criteria				
Assessment Category	Passable level of achievement – below provincial standard LEVEL 1	Moderate level of achievement – below, but approaching provincial standard LEVEL 2	High level of achievement – at provincial standard LEVEL 3	Very high to outstanding level of achievement – above provincial standard LEVEL 4
	Knowledge/Understanding			
	- Attempted solution demonstrates limited understanding of how to determine the equation of an ellipse. - Some steps for finding a, b, and c performed but may contain inaccuracies.	- Solution demonstrates some understanding of how to determine the equation of an ellipse. - Most steps for finding a, b, and c performed but may contain inaccuracies.	- Solution demonstrates sufficient understanding of how to determine the equation of an ellipse. - Steps for finding a, b, and c performed completely, most computations generally correct.	- Detailed solution demonstrates thorough understanding of how to determine the equation of an ellipse. - Steps for finding a, b, and c performed completely, accurately, and student verified or supported the steps.
	Communication			
	- Student gathers limited but accurate information from statement of problem. - The connection between the diagram and the information is weak. - Explanations and justifications are unclear.	- Student gathers some information from statement of problem, or has difficulty interpreting it. - There are some connections between the diagram and the information. - Explanations and justifications are understandable but unclear.	- Student gathers sufficient information from statement of problem and interprets it correctly. - The connection between the diagram and the information is accurate. - Explanations and justifications are clear.	- Student gathers complex information from statement of problem and interprets it fully. - The connection between the diagram and the information is accurate, and the diagram addresses all aspects of the problem. - Explanations and justifications are clear and thorough.
	Application			
	Method/strategy is only partially appropriate to the context of the question.	Method/strategy is generally appropriate to the question.	Method/strategy is appropriate and relates to the context of the question.	Method/strategy is appropriate, efficient, and to the broadest context of the question.

RUBRIC FOR PERFORMANCE TASK #2 — CONICS AND FOCI

Scores and Criteria				
Assessment Category	Passable level of achievement – below provincial standard LEVEL 1	Moderate level of achievement – below, but approaching provincial standard LEVEL 2	High level of achievement – at provincial standard LEVEL 3	Very high to outstanding level of achievement – above provincial standard LEVEL 4
	Knowledge/Understanding			
	Some of calculations of distances to foci and vertices performed but may contain inaccuracies.	Most of calculations of distances to foci and vertices performed but may contain inaccuracies.	Calculations of distances to foci and vertices performed completely, most computations generally correct.	Calculations of distances to foci and vertices performed completely, accurately, and are verified or supported.
	Thinking/Inquiry/Problem Solving			
	- Conjecture created but may be identified incorrectly and/or insufficiently linked to problem. - Conclusions are somewhat connected with work but are not supported.	- Conjecture created but connection to evidence and/or problem is weak. - Conclusions are consistent with work but are not fully supported.	- Conjecture relates correctly to problem. - Conclusions are supported by evidence and integrate aspects of the problem.	- Clearly expressed conjecture relates to given evidence and context of problem. - Conclusions are supported, integrate all aspects of the problem, and are convincing.
	Communication			
	- Student's use of correct mathematical forms in explanations and summaries is limited. - Explanations and justifications are unclear.	- Student correctly uses mathematical forms in explanations and summaries. - Explanations and justifications are understandable but unclear.	- Student uses mathematical forms in explanations and summaries. - Explanations and justifications are clear.	- Student integrates a broad range of mathematical forms in explanations and summaries. - Explanations and justifications are clear and thorough.

RUBRIC FOR PERFORMANCE TASK #3 — WHAT ARE THE EQUATIONS?

Scores and Criteria				
Assessment Category	Passable level of achievement – below provincial standard LEVEL 1	Moderate level of achievement – below, but approaching provincial standard LEVEL 2	High level of achievement – at provincial standard LEVEL 3	Very high to outstanding level of achievement – above provincial standard LEVEL 4
	Knowledge/Understanding			
	- Attempted solution demonstrates limited understanding of equations of conics. - Some steps for finding intersection point performed but may contain inaccuracies.	- Solution demonstrates some understanding of equations of conics. - Most steps for finding intersection point performed but may contain inaccuracies.	- Solution demonstrates sufficient understanding of equations of conics. - Steps for finding intersection point performed completely, most computations generally correct.	- Detailed solution demonstrates thorough understanding of equations of conics. - Steps for finding intersection point performed completely and accurately and are verified or supported.
	Thinking/Inquiry/Problem Solving			
	Reasoning in description of process is evident but lacks consistency.	Reasoning in description of process is evident and logical in parts of the problem.	Reasoning in description of process is logical and consistent within context.	Reasoning in description of process is logical and consistent and relates to broader context.
	Communication			
	- Few mathematical conventions are used. - Explanations are unclear.	- Some mathematical conventions are used correctly. - Explanations are understandable but unclear.	- Most mathematical conventions are used correctly. - Explanations are clear.	- Mathematical conventions are used correctly. - Explanations are clear and thorough.
	Application			
	Selected equations are only partially appropriate to the given design.	Selected equations are generally appropriate to the given design.	Selected equations are appropriate to the given design.	Selected equations are appropriate, efficient, and easily generate the given design.

RUBRIC FOR PERFORMANCE TASK #4 — WHAT ARE THE SOLUTIONS?

Scores and Criteria				
Assessment Category	Passable level of achievement – below provincial standard LEVEL 1	Moderate level of achievement – below, but approaching provincial standard LEVEL 2	High level of achievement – at provincial standard LEVEL 3	Very high to outstanding level of achievement – above provincial standard LEVEL 4
	Knowledge/Understanding			
	- Attempted solution demonstrates limited understanding of equations of conics. - Some steps for finding the values of a, b, and c performed but may contain inaccuracies.	- Solution demonstrates some understanding of equations of conics. - Most steps for finding the values of a, b, and c performed but may contain inaccuracies.	- Solution demonstrates sufficient understanding of equations of conics. - Steps for finding the values of a, b, and c performed completely, most computations generally correct.	- Detailed solution demonstrates thorough understanding of equations of conics. - Steps for finding the values of a, b, and c performed completely, accurately, and student verified or supported the steps.
	Communication			
	- Student gathers limited but accurate information from statement of problem. - The connection between the graphs and the information is weak. - Explanations and justifications are unclear.	- Student gathers some information from statement of problem, or has difficulty interpreting it. - There are some connections between the graphs and the information. - Explanations and justifications are understandable but unclear.	- Student gathers sufficient information from statement of problem and interprets it correctly. - The connection between the graphs and the information is accurate. - Explanations and justifications are clear.	- Student gathers complex information from statement of problem and interprets it fully. - The connection between the graphs and the information is accurate, and the graphs address all aspects of each problem. - Explanations and justifications are clear and thorough.
	Application			
	Method/strategy is only partially appropriate to the context of the question.	Method/strategy is generally appropriate to the question.	Method/strategy is appropriate and relates to the context of the question.	Method/strategy is appropriate, efficient, and to the broadest context of the question.

RUBRIC FOR PERFORMANCE TASK #5 — BLAISE PASCAL

Scores and Criteria				
Assessment Category	Passable level of achievement – below provincial standard LEVEL 1	Moderate level of achievement – below, but approaching provincial standard LEVEL 2	High level of achievement – at provincial standard LEVEL 3	Very high to outstanding level of achievement – above provincial standard LEVEL 4
	Thinking/Inquiry/Problem Solving			
	- Graphical and geometric models are only partially appropriate to the exploration of the problem. - Reasoning is evident but inconsistent. - Student makes some connections between exploration, conjecture, and conclusions but does not show support of these connections.	- Graphical and geometric models are generally appropriate to the exploration of the problem. - Reasoning is evident and logical in parts of the problem. - Students makes consistent connections between exploration, conjecture, and conclusions but does not fully support the connections.	- Graphical and geometric models are appropriate and relate to the exploration of the problem. - Reasoning is logical and consistent within context. - Student supports connections between exploration, conjecture, and conclusions are with evidence and integrates aspects of the problems.	- Graphical and geometric models are appropriate and efficient and relate to the full exploration of the problem. - Reasoning is logical and consistent and relates to the broader context. - Student convincingly supports connections between exploration, conjecture, and conclusions and integrates all aspects of the problems.
	Communication			
	- Either mathematical or narrative form is present, but not both. - Explanations and justifications are unclear.	- Both mathematical and narrative forms are present, but the forms are not integrated. - Explanations and justifications are understandable but unclear.	- Mathematical and narrative forms are present and integrated. - Explanations and justifications are clear.	- Various mathematical and narrative forms are present, integrated, and well chosen. - Explanations and justifications are clear and thorough.
	Application			
	Selected strategies are used with some inaccuracies.	Selected strategies are used but may contain minor errors.	Selected strategies are used correctly.	Selected strategies are used correctly and are verified or supported.

RUBRIC FOR PERFORMANCE TASK #6 — CONSTRUCTING AN ELLIPSE

Assessment Category	Scores and Criteria			
	Passable level of achievement – below provincial standard LEVEL 1	Moderate level of achievement – below, but approaching provincial standard LEVEL 2	High level of achievement – at provincial standard LEVEL 3	Very high to outstanding level of achievement – above provincial standard LEVEL 4
	Thinking/Inquiry/Problem Solving			
	- Student makes some connections between exploration, conjecture, and conclusions but does not show support of these connections. - Geometric models are only partially appropriate to the exploration of the problem. - Verification of ellipse lacks consistency or is incomplete.	- Student makes consistent connections between exploration, conjecture, and conclusions but does not fully support the connections. - Geometric models are generally appropriate to the exploration of the problem. - Verification of ellipse is somewhat logical and consistent.	- Student supports connections between exploration, conjecture, and conclusions are with evidence and integrates aspects of the problems. - Geometric models are appropriate and relate to the exploration of the problem. - Verification of ellipse is logical and consistent.	- Student convincingly supports connections between exploration, conjecture, and conclusions and integrates all aspects of the problems. - Geometric models are appropriate, efficient, and relate to the full exploration of the problem. - Verification of ellipse is logical, consistent, and fully developed.
	Communication			
	- Little appropriate terminology is used. - Explanations and justifications are unclear.	- Some appropriate terminology is used correctly. - Explanations and justifications are understandable but unclear.	- Most appropriate terminology is used correctly. - Explanations and justifications are clear.	- Full range of appropriate terminology is used correctly. - Explanations and justifications are clear and thorough.
	Application			
	Selected strategies are used with some inaccuracies.	Selected strategies are used but may contain minor errors.	Selected strategies are used correctly.	Selected strategies are used correctly and are verified or supported.