

Rubric based on the v8.3 Year 9 Mathematics Achievement Standard

Achievement Standard	Levels Criteria (Assessable Elements)	A Excellent 1 Advanced	B Good 2 Proficient	C Satisfactory 3 Functional	D Partial 4 Developing	E Minimal 5
Knowledge and Understanding (Extent of knowledge and depth of understanding as demonstrated through the Proficiencies)	Solve problems involving simple interest	Solve problems involving simple interest using highly effective and highly efficient strategies	Solve problems involving simple interest using mostly effective and mostly efficient strategies	Solve problems involving simple interest using generally effective and generally efficient strategies	Solve problems involving simple interest using partially effective and partially efficient strategies	Beginning to solve problems involving simple interest
	Interpret ratio and scale factors in similar figures	Highly logical and highly effective interpretation of ratio and scale factors in similar figures	Mostly logical and mostly effective interpretation of ratio and scale factors in similar figures	Generally logical and generally effective interpretation of ratio and scale factors in similar figures	Partially logical and partially effective interpretation of ratio and scale factors in similar figures	Beginning to interpret ratio and scale factors in similar figures
	Explain similarity of triangles	Comprehensive and lucid explanation of similarity of triangles	Detailed and clear explanation of similarity of triangles	Adequate and generally clear explanation of similarity of triangles	Basic and partially clear explanation of similarity of triangles	Limited and vague explanation of similarity of triangles
	Recognise the connections between similarity and the trigonometric ratios	Recognition of the connections between similarity and the trigonometric ratios with extended understanding	Recognition of the connections between similarity and the trigonometric ratios with considerable understanding	Recognition of the connections between similarity and the trigonometric ratios with adequate understanding	Recognition of the connections between similarity and the trigonometric ratios with basic understanding	Recognition of the connections between similarity and the trigonometric ratios with direction
	Compare techniques for collecting data in primary and secondary sources	Highly accurate and highly logical comparison of techniques for collecting data in primary and secondary sources	Mostly accurate and mostly logical comparison of techniques for collecting data in primary and secondary sources	Generally accurate and generally logical comparison of techniques for collecting data in primary and secondary sources	Partially accurate and partially logical comparison of techniques for collecting data in primary and secondary sources	Comparison of techniques for collecting data in primary and secondary sources with direction

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	Make sense of the position of the mean and median in skewed, symmetric and bi-modal displays to describe and interpret data	Make sense of the position of the mean and median in skewed, symmetric and bi-modal displays to describe and interpret data in a highly logical and sophisticated manner	Make sense of the position of the mean and median in skewed, symmetric and bi-modal displays to describe and interpret data in a mostly logical manner	Make sense of the position of the mean and median in skewed, symmetric and bi-modal displays to describe and interpret data with adequate logic	Make sense of the position of the mean and median in skewed, symmetric and bi-modal displays to describe and interpret data with some logic	Make sense of the position of the mean and median in skewed, symmetric and bi-modal displays to describe and interpret data with direction
<p>Sophistication of Skills</p> <p>(Sophistication of skills as demonstrated through the Proficiencies)</p> <p>Note: Degrees of accuracy (high, mostly, moderate, partial, limited) are assumed in the A-E range for all skills</p>	Apply the index laws to numbers and express numbers in scientific notation	Highly logical and highly successful application of the index laws to numbers and express numbers in scientific notation	Mostly logical application of the index laws to numbers and express numbers in scientific notation	Generally logical application of the index laws to numbers and express numbers in scientific notation	Partially logical application of the index laws to numbers and express numbers in scientific notation	Limited application of the index laws to numbers and express numbers in scientific notation
	Expand binomial expressions	Highly fluent expansion of binomial expressions	Mostly fluent expansion of binomial expressions	Generally fluent of expansion binomial expressions	Partially fluent expansion of binomial expressions	Limited expansion of binomial expressions
	Find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment	Find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment in a highly accurate manner	Find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment in a mostly accurate manner	Find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment in a generally accurate manner	Find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment with some accuracy	Find the distance between two points on the Cartesian plane and the gradient and midpoint of a line segment with little accuracy
	Sketch linear and non-linear relations	Sketch linear and non-linear relations in a highly competent manner	Sketch linear and non-linear relations in a mostly competent manner	Sketch linear and non-linear relations in a generally competent manner	Sketch linear and non-linear relations with some competence	Sketch linear and non-linear relations with direction

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	<p>Calculate areas of shapes and the volume and surface area of right prisms and cylinders</p>	<p>Calculate areas of shapes and the volume and surface area of right prisms and cylinders in highly competent manner with comprehensive reasoning</p>	<p>Calculate areas of shapes and the volume and surface area of right prisms and cylinders in mostly competent manner with substantial reasoning</p>	<p>Calculate areas of shapes and the volume and surface area of right prisms and cylinders in generally competent manner with adequate reasoning</p>	<p>Calculate areas of shapes and the volume and surface area of right prisms and cylinders in partially competent manner with obvious reasoning</p>	<p>Calculate areas of shapes and the volume and surface area of right prisms and cylinders in highly with direction</p>
	<p>Use Pythagoras' Theorem and trigonometry to find unknown sides of right-angled triangles</p>	<p>Use Pythagoras' Theorem and trigonometry to find unknown sides of right-angled triangles in a highly skilful manner</p>	<p>Use Pythagoras' Theorem and trigonometry to find unknown sides of right-angled triangles in a mostly skilful manner</p>	<p>Use Pythagoras' Theorem and trigonometry to find unknown sides of right-angled triangles in a generally skilful manner</p>	<p>Use Pythagoras' Theorem and trigonometry to find unknown sides of right-angled triangles in a partially skilful manner</p>	<p>Use Pythagoras' Theorem and trigonometry to find unknown sides of right-angled triangles with limited skill</p>
	<p>Calculate relative frequencies to estimate probabilities, list outcomes for two-step experiments and assign probabilities for those outcomes</p>	<p>Calculate relative frequencies to estimate probabilities in a highly competent manner</p>	<p>Calculate relative frequencies to estimate probabilities in a mostly competent manner</p>	<p>Calculate relative frequencies to estimate probabilities in a reasonably competent manner</p>	<p>Calculate relative frequencies to estimate probabilities in a partially competent manner</p>	<p>Calculate relative frequencies to estimate probabilities with direction</p>
	<p>List outcomes for two-step experiments and assign probabilities for those outcomes</p>	<p>List outcomes for two-step experiments and assign probabilities for those outcomes in a highly consistent and comprehensively justified manner</p>	<p>List outcomes for two-step experiments and assign probabilities for those outcomes in a most consistent and well-justified manner</p>	<p>List outcomes for two-step experiments and assign probabilities for those outcomes in a generally consistent with adequate justification</p>	<p>List outcomes for two-step experiments and assign probabilities for those outcomes with guidance</p>	<p>List outcomes for two-step experiments and assign probabilities for those outcomes with direction</p>
<p>Construct histograms and back-to-back stem-and-leaf plots</p>	<p>Construct histograms and back-to-back stem-and-leaf plots in a highly successful manner</p>	<p>Construct histograms and back-to-back stem-and-leaf plots in a mostly successful manner</p>	<p>Construct histograms and back-to-back stem-and-leaf plots in a generally successful manner</p>	<p>Construct histograms and back-to-back stem-and-leaf plots in a partially successful manner</p>	<p>Construct histograms and back-to-back stem-and-leaf plots with limited success</p>	