

# NCEA Mathematics and Statistics Remote Learning and Assessment

NZQA has considered the impacts of the Covid-19 virus on teaching, learning and assessment programmes for NCEA Mathematics and Statistics. This document includes guidance for both internal and external Mathematics and Statistics Achievement Standards.

## General Guidance

Students may need access to measuring equipment and appropriate mathematical and statistical software. Access to a device and the internet will be required. This may pose issues around access and equity for some students, which you will need to consider in your programme planning.

## Supporting evidence

The Conditions of Assessment document should be read in conjunction with this document.

## Mathematics and Statistics Matrix

**KEY:** A colour-coding system to categorise standards according to the advice in this document.

<b>Green</b>	These standards are suitable for remote teaching, learning and assessment.
<b>Blue</b>	Teachers can facilitate assessment against these standards by remote learning with guidance (refer to General Guidance above).
<b>Red</b>	These standards require a collaborative process or interaction with others, and are not suitable for remote teaching, learning and assessment.

Domain	Level 1	Level 2	Level 3
Number	<p><b>AS91026</b> <span style="float: right;"><b>1.1</b></span></p> <p><b>Apply numeric reasoning in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>4 credits <span style="float: right;">Internal</span></p>		

Domain	Level 1	Level 2	Level 3
Algebra	<p><b>AS91027</b> <span style="float: right;"><b>1.2</b></span>  <b>Apply algebraic procedures in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>	<p><b>AS91257</b> <span style="float: right;"><b>2.2</b></span>  <b>Apply graphical methods in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>4 credits <span style="float: right;">Internal</span></p>	<p><b>AS91573</b> <span style="float: right;"><b>3.1</b></span>  <b>Apply the geometry of conic sections in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>3 credits <span style="float: right;">Internal</span></p>
Algebra	<p><b>AS91028</b> <span style="float: right;"><b>1.3</b></span>  <b>Investigate relationships between tables, equations and graphs</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>	<p><b>AS91258</b> <span style="float: right;"><b>2.3</b></span>  <b>Apply sequences and series in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>2 credits <span style="float: right;">Internal</span></p>	<p><b>AS91574</b> <span style="float: right;"><b>3.2</b></span>  <b>Apply linear programming methods in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>3 credits <span style="float: right;">Internal</span></p>

Domain	Level 1	Level 2	Level 3
Algebra	<p><b>AS91029</b> <span style="float: right;"><b>1.4</b></span>  <b>Apply linear algebra in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91261</b> <span style="float: right;"><b>2.6</b></span>  <b>Apply algebraic methods in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>	<p><b>AS91577</b> <span style="float: right;"><b>3.5</b></span>  <b>Apply the algebra of complex numbers in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>5 credits <span style="float: right;">External</span></p>
Algebra		<p><b>AS91269</b> <span style="float: right;"><b>2.14</b></span>  <b>Apply systems of equations in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>2 credits <span style="float: right;">Internal</span></p>	<p><b>AS91587</b> <span style="float: right;"><b>3.15</b></span>  <b>Apply systems of simultaneous equations in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>3 credits <span style="float: right;">Internal</span></p>

Domain	Level 1	Level 2	Level 3
Geometry	<p><b>AS91031</b> <span style="float: right;"><b>1.6</b></span>  <b>Apply geometric reasoning in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>	<p><b>AS91256</b> <span style="float: right;"><b>2.1</b></span>  <b>Apply co-ordinate geometry methods in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>2 credits <span style="float: right;">Internal</span></p>	<p><b>AS91576</b> <span style="float: right;"><b>3.4</b></span>  <b>Use critical path analysis in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>2 credits <span style="float: right;">Internal</span></p>
Geometry	<p><b>AS91033</b> <span style="float: right;"><b>1.8</b></span>  <b>Apply knowledge of geometric representations in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91260</b> <span style="float: right;"><b>2.5</b></span>  <b>Apply network methods in solving problems</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>2 credits <span style="float: right;">Internal</span></p>	

Domain	Level 1	Level 2	Level 3
Geometry	<p data-bbox="286 193 875 296"><b>AS91034</b> <span style="float: right;"><b>1.9</b></span>  <b>Apply transformation geometry in solving problems</b></p> <p data-bbox="286 331 860 461">Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p data-bbox="286 644 875 671">2 credits <span style="float: right;">Internal</span></p>		
Measurement	<p data-bbox="286 695 875 762"><b>AS91030</b> <span style="float: right;"><b>1.5</b></span>  <b>Apply measurement in solving problems</b></p> <p data-bbox="286 798 860 927">Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p data-bbox="286 1031 875 1058">3 credits <span style="float: right;">Internal</span></p>		

Domain	Level 1	Level 2	Level 3
Calculus		<p data-bbox="904 193 1500 293"><b>AS91262</b> <span style="float: right;"><b>2.7</b></span>  <b>Apply calculus methods in solving problems</b></p> <p data-bbox="904 331 1500 472">Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p data-bbox="904 644 1500 671">5 credits <span style="float: right;">External</span></p>	<p data-bbox="1527 193 2123 293"><b>AS91578</b> <span style="float: right;"><b>3.6</b></span>  <b>Apply differentiation methods in solving problems</b></p> <p data-bbox="1527 331 2123 472">Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p data-bbox="1527 644 2123 671">6 credits <span style="float: right;">External</span></p>
Calculus			<p data-bbox="1527 694 2123 794"><b>AS91579</b> <span style="float: right;"><b>3.7</b></span>  <b>Apply integration methods in solving problems</b></p> <p data-bbox="1527 833 2123 973">Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p data-bbox="1527 1027 2123 1054">6 credits <span style="float: right;">External</span></p>

Domain	Level 1	Level 2	Level 3
Statistics and Probability	<p><b>AS91035</b> <span style="float: right;"><b>1.10</b></span>  <b>Investigate a given multivariate data set using the statistical enquiry cycle</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p style="text-align: right;">4 credits <span style="float: right;">Internal</span></p>	<p><b>AS91263</b> <span style="float: right;"><b>2.8</b></span>  <b>Design a questionnaire</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p style="text-align: right;">3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91580</b> <span style="float: right;"><b>3.8</b></span>  <b>Investigate time series data</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p style="text-align: right;">4 credits <span style="float: right;">Internal</span></p>
Statistics and Probability	<p><b>AS91036</b> <span style="float: right;"><b>1.11</b></span>  <b>Investigate bivariate numerical data using the statistical enquiry cycle</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p style="text-align: right;">3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91264</b> <span style="float: right;"><b>2.9</b></span>  <b>Use statistical methods to make an inference</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p style="text-align: right;">4 credits <span style="float: right;">Internal</span></p>	<p><b>AS91581</b> <span style="float: right;"><b>3.9</b></span>  <b>Investigate bivariate measurement data</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p style="text-align: right;">4 credits <span style="float: right;">Internal</span></p>



Domain	Level 1	Level 2	Level 3
Statistics and Probability	<p><b>AS91037</b> <span style="float: right;"><b>1.12</b></span>  <b>Demonstrate understanding of chance and data</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>	<p><b>AS91265</b> <span style="float: right;"><b>2.10</b></span>  <b>Conduct an experiment to investigate a situation using statistical methods</b></p> <p>This standard requires students to conduct an experiment. The student's ability to complete the process of investigating a situation may be constrained. This standard could be assessed when students or groups of students can return to school..</p> <p>3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91582</b> <span style="float: right;"><b>3.10</b></span>  <b>Use statistical methods to make a formal inference</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>4 credits <span style="float: right;">Internal</span></p>
Statistics and Probability	<p><b>AS91038</b> <span style="float: right;"><b>1.13</b></span>  <b>Investigate a situation involving elements of chance</b></p> <p>Teaching learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91266</b> <span style="float: right;"><b>2.11</b></span>  <b>Evaluate a statistically based report</b></p> <p>Teaching learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>2 credits <span style="float: right;">Internal</span></p>	<p><b>AS91583</b> <span style="float: right;"><b>3.11</b></span>  <b>Conduct an experiment to investigate a situation using experimental design principles</b></p> <p>This standard requires students to conduct an experiment. The student's ability to complete the process of investigating a situation may be constrained. This standard could be assessed when students or groups of students can return to school..</p> <p>4 credits <span style="float: right;">Internal</span></p>

Domain	Level 1	Level 2	Level 3
Statistics and Probability		<p><b>AS91267</b> <span style="float: right;"><b>2.12</b></span>  <b>Apply probability methods in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>	<p><b>AS91584</b> <span style="float: right;"><b>3.12</b></span>  <b>Evaluate statistically based reports</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>
Statistics and Probability		<p><b>AS91268</b> <span style="float: right;"><b>2.13</b></span>  <b>Investigate a situation involving elements of chance using a simulation</b></p> <p>Teaching, learning and assessment is suitable for remote conditions. Students will need to use digital platforms to share their evidence.</p> <p>2 credits <span style="float: right;">Internal</span></p>	<p><b>AS91585</b> <span style="float: right;"><b>3.13</b></span>  <b>Apply probability concepts in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>

Domain	Level 1	Level 2	Level 3
Statistics and Probability			<p><b>AS91586</b> <span style="float: right;"><b>3.14</b></span>  <b>Apply probability distributions in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote conditions. The current Assessment Specifications will continue to apply.</p> <p>4 credits <span style="float: right;">External</span></p>
Trigonometry	<p><b>AS91032</b> <span style="float: right;"><b>1.7</b></span>  <b>Apply right-angled triangles in solving measurement problems</b></p> <p>This standard requires learners to have access to practical measuring equipment. The appropriateness of measurements also needs to be checked. This standard could be assessed when students or groups of students can return to school.</p> <p>3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91259</b> <span style="float: right;"><b>2.4</b></span>  <b>Apply trigonometric relationships in solving problems</b></p> <p>Teaching and learning and assessment of this standard is suitable for remote conditions. The current Conditions of Assessment will continue to apply.</p> <p>3 credits <span style="float: right;">Internal</span></p>	<p><b>AS91575</b> <span style="float: right;"><b>3.3</b></span>  <b>Apply trigonometric methods in solving problems</b></p> <p>Teaching and learning towards assessment of this standard is suitable for remote learning. The current Conditions of Assessment will continue to apply.</p> <p>4 credits <span style="float: right;">Internal</span></p>