Indiana Academic Standards for Mathematics – Calculus
Adopted April 2014 – Standards Correlation Guide Document 10/02/2017

	Indiana Academic Standard for Calculus Mathematics – Adopted April 2014	Indiana Academic Mathematics Standard Adopted 2000	Common Core State Standard for Mathematics	Differences From Previous Standards
Process Standards				
MA.C.PS.1: Make sense of problems and persevere in solving them.	Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway, rather than simply jumping into a solution attempt. They consider analogous problems and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" and "Is my answer reasonable?" They understand the approaches of others to solving complex problems and identify correspondences between different approaches. Mathematically proficient students understand how mathematical ideas interconnect and build on one another to produce a coherent whole.	Connections Connecting mathematical concepts includes linking new ideas to related ideas learned previously, helping students to see mathematics as a unified body of knowledge whose concepts build upon each other. Major emphasis should be given to ideas and concepts across mathematical content areas that help students see that mathematics is a web of closely connected ideas (algebra, geometry, the entire number system). Mathematics is also the common language of many other disciplines (science, technology, finance, social science, geography) and students should learn mathematical concepts used in those disciplines. Finally, students should connect their mathematical learning to appropriate real-world contexts.	1 Make sense of problems and persevere in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.	IAS 2014 removes criteria involving a graphing calculator and does not distinguish between younger and older students.
MA.C.PS.2: Reason abstractly and quantitatively.	Mathematically proficient students make sense of quantities and their relationships in problem situations. They bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.		2 Reason abstractly and quantitatively. Mathematically proficient students make sense of the quantities and their relationships in problem situations. Students bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.	IAS 2014 is similar to common core, both expand upon IAS 2000 by having the student decontextualize problems and develop quantitative reasoning.

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MA.C.PS.3: Construct viable arguments and critique the reasoning of others.	Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They analyze situations by breaking them into cases and recognize and use counterexamples. They organize their mathematical thinking, justify their conclusions and communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. They justify whether a given statement is true always, sometimes, or never. Mathematically proficient students participate and collaborate in a mathematics community. They listen to or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.	Communication The ability to read, write, listen, ask questions, think, and communicate about math will develop and deepen students' understanding of mathematical concepts. Students should read text, data, tables, and graphs with comprehension and understanding. Their writing should be detailed and coherent, and they should use correct mathematical vocabulary. Students should write to explain answers, justify mathematical reasoning, and describe problem-solving strategies. Mathematical Reasoning and Problem Solving In a general sense, mathematics is problem solving. In all of their mathematics, students use problem-solving skills: they choose how to approach a problem, they explain their reasoning, and they check their results. At this level, students apply these skills to investigating limits and applying them to continuity, differentiability, and integration.	3 Construct viable arguments and critique the reasoning of others. Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.	IAS 2014 is similar to common core, both expand upon IAS 2000 by having students construct arguments , use counterexamples, and critique others arguments. IAS 2014 does not distinguish between younger and older students.
MA.C.PS.4: Model with mathematics.	Mathematically proficient students apply the mathematics they know to solve problems arising in everyday life, society, and the workplace using a variety of appropriate strategies. They create and use a variety of representations to solve problems and to organize and communicate mathematical ideas. Mathematically proficient students apply what they know and are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.	Representation The language of mathematics is expressed in words, symbols, formulas, equations, graphs, and data displays. The concept of one-fourth may be described as a quarter, , one divided by four, 0.25, + , 25 percent, or an appropriately shaded portion of a pie graph. Higher-level mathematics involves the use of more powerful representations: exponents, logarithms, π, unknowns, statistical representation, algebraic and geometric expressions. Mathematical operations are expressed as representations: +, =, divide, square. Representations are dynamic tools for solving problems and communicating and expressing mathematical ideas and concepts.	4 Model with mathematics. Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.	IAS 2014 has removed examples and does not distinguish between younger and older students.

Indiana Department of Education

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MA.C.PS.5: Use appropriate tools strategically.	Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Mathematically proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. Mathematically proficient students identify relevant external mathematical resources, such as digital content, and use them to pose or solve problems. They use technological tools to explore and deepen their understanding of concepts and to support the development of learning mathematics. They use technology to contribute to concept development, simulation, representation, reasoning, communication and problem solving.		5 Use appropriate tools strategically. Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.	IAS 2014 does not distinguish between younger and older students. Both IAS 2014 and CCSS expand upon IAS 2000 by having students consider more than just graphing.
MA.C.PS.6: Attend to precision.	Mathematically proficient students communicate precisely to others. They use clear definitions, including correct mathematical language, in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They express solutions clearly and logically by using the appropriate mathematical terms and notation. They specify units of measure and label axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently and check the validity of their results in the context of the problem. They express numerical answers with a degree of precision appropriate for the problem context.	Communication The ability to read, write, listen, ask questions, think, and communicate about math will develop and deepen students' understanding of mathematical concepts. Students should read text, data, tables, and graphs with comprehension and understanding. Their writing should be detailed and coherent, and they should use correct mathematical vocabulary. Students should write to explain answers, justify mathematical reasoning, and describe problem-solving strategies.	6 Attend to precision. Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.	IAS 2014 does not distinguish between younger and older students.

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MA.C.PS.7: Look for and make use of structure.	Mathematically proficient students look closely to discern a pattern or structure. They step back for an overview and shift perspective. They recognize and use properties of operations and equality. They organize and classify geometric shapes based on their attributes. They see expressions, equations, and geometric figures as single objects or as being composed of several objects.		7 Look for and make use of structure. Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7 × 8 equals the well remembered 7 × 5 + 7 × 3, in preparation for learning about the distributive property. In the expression x2 + 9x + 14, older students can see the 14 as 2 × 7 and the 9 as 2 + 7. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see 5 – 3(x – y)2 as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.	IAS 2014 has removed examples and does not distinguish between younger and older students. Both IAS 2014 and CCSS expand upon IAS 2000 by having students discern patterns, structure, geometric figures, and composition of objects.
MA.C.PS.8: Look for and express regularity in repeated reasoning.	Mathematically proficient students notice if calculations are repeated and look for general methods and shortcuts. They notice regularity in mathematical problems and their work to create a rule or formula. Mathematically proficient students maintain oversight of the process, while attending to the details as they solve a problem. They continually evaluate the reasonableness of their intermediate results.		8 Look for and express regularity in repeated reasoning. Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation (y – 2)/(x – 1) = 3. Noticing the regularity in the way terms cancel when expanding (x – 1)(x + 1), (x – 1)(x2 + x + 1), and (x – 1)(x3 + x2 + x + 1) might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.	IAS 2014 has removed examples and does not distinguish between younger and older students.
Limits and Continuity				
MA.C.LC.1:	C.LC.1: Understand the concept of limit and estimate limits from graphs and tables of values.	C.1.1 Understand the concept of limit and estimate limits from graphs and tables of values.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.2:	C.LC.2: Find limits by substitution.	C.1.2 Find limits by substitution.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.3:	C.LC.3: Find limits of sums, differences, products, and quotients.	C.1.3 Find limits of sums, differences, products, and quotients.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.4:	C.LC.4: Find limits of rational functions that are undefined at a point.	C.1.4 Find limits of rational functions that are undefined at a point.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.5:	C.LC.5: Find limits at infinity.	C.1.6 Find limits at infinity.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards

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MA.C.LC.6:	C.LC.6: Decide when a limit is infinite and use limits involving infinity to describe asymptotic behavior. Find special limits $\lim_{x \to 0} \frac{\sin x}{x}$	C.1.7 Decide when a limit is infinite and use limits involving infinity to describe asymptotic behavior. C.1.8 Find special limits such as $\lim_{x \to 0} \frac{\sin x}{x}$		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.7:	C.LC.7: Find one-sided limits.	C.1.5 Find one-sided limits.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.8:	C.LC.8: Understand continuity in terms of limits.	C.1.9 Understand continuity in terms of limits.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.9:	C.LC.9: Decide if a function is continuous at a point.	C.1.10 Decide if a function is continuous at a point.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.10:	C.LC.10: Find the types of discontinuities of a function.	C.1.11 Find the types of discontinuities of a function.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.11:	C.LC.11: Understand and use the Intermediate Value Theorem on a function over a closed interval.	C.1.12 Understand and use the Intermediate Value Theorem on a function over a closed interval.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.LC.12:	C.LC.12: Understand and apply the Extreme Value Theorem: If f(x) is continuous over a closed interval, then f has a maximum and a minimum on the interval.	C.1.13 Understand and apply the Extreme Value Theorem: If f(x) is continuous over a closed interval, then f has a maximum and a minimum on the interval.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
Differentiation				
MA.C.D.1:	C.D.1: Understand the concept of derivative geometrically, numerically, and analytically, and interpret the derivative as a rate of change.	C.2.1 Understand the concept of derivative geometrically, numerically, and analytically, and interpret the derivative as a rate of change.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.2:	C.D.2: State, understand, and apply the definition of derivative.	C.2.2 State, understand, and apply the definition of derivative.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.3:	C.D.3: Find the derivatives of functions, including algebraic, trigonometric, logarithmic, and exponential functions.	C.2.3 Find the derivatives of functions, including algebraic, trigonometric, logarithmic, and exponential functions.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.4:	C.D.4: Find the derivatives of sums, products, and quotients.	C.2.4 Find the derivatives of sums, products, and quotients.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.5:	C.D.5: Find the derivatives of composite functions, using the chain rule.	C.2.5 Find the derivatives of composite functions, using the chain rule.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.6:	C.D.6: Find the derivatives of implicitly-defined functions.	C.2.6 Find the derivatives of implicitly-defined functions.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.7:	C.D.7: Find the derivatives of inverse functions.	C.2.7 Find derivatives of inverse functions.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.8:	C.D.8: Find second derivatives and derivatives of higher order.	C.2.8 Find second derivatives and derivatives of higher order.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.9:	C.D.9: Find derivatives using logarithmic differentiation.	C.2.9 Find derivatives using logarithmic differentiation.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.10:	C.D.10: Understand and apply the relationship between differentiability and continuity.	C.2.10 Understand and use the relationship between differentiability and continuity.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.D.11:	C.D.11: Understand and apply the Mean Value Theorem.	C.2.11 Understand and apply the Mean Value Theorem.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
Applications of Derivatives				
MA.C.AD.1:	C.AD.1: Find the slope of a curve at a point, including points at which there are vertical tangents and no tangents.	C.3.1 Find the slope of a curve at a point, including points at which there are vertical tangents and no tangents.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.2:	C.AD.2: Find a tangent line to a curve at a point and a local linear approximation.	C.3.2 Find a tangent line to a curve at a point and a local linear approximation.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards

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MA.C.AD.3:	C.AD.3: Decide where functions are decreasing and increasing. Understand the relationship between the increasing and decreasing behavior of f and the sign of f'.	C.3.3 Decide where functions are decreasing and increasing. Understand the relationship between the increasing and decreasing behavior of f and the sign of f'.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.4:	C.AD.4: Solve real-world and other mathematical problems finding local and absolute maximum and minimum points with and without technology.	C.3.4 Find local and absolute maximum and minimum points.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.5:	C.AD.5: Analyze real-world problems modeled by curves, including the notions of monotonicity and concavity with and without technology.	C.3.5 Analyze curves, including the notions of monotonicity and concavity.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.6:	C.AD.6: Find points of inflection of functions. Understand the relationship between the concavity of f and the sign of f". Understand points of inflection as places where concavity changes.	C.3.6 Find points of inflection of functions. Understand the relationship between the concavity of f and the sign of f". Understand points of inflection as places where concavity changes.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.7:	C.AD.7: Use first and second derivatives to help sketch graphs modeling real-world and other mathematical problems with and without technology. Compare the corresponding characteristics of the graphs of f, f', and f".	C.3.7 Use first and second derivatives to help sketch graphs. Compare the corresponding characteristics of the graphs of f, f', and f".		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.8:	C.AD.8: Use implicit differentiation to find the derivative of an inverse function.	C.3.8 Use implicit differentiation to find the derivative of an inverse function.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.9:	C.AD.9: Solve optimization real-world problems with and without technology.	C.3.9 Solve optimization problems.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.10:	C.AD.10: Find average and instantaneous rates of change. Understand the instantaneous rate of change as the limit of the average rate of change. Interpret a derivative as a rate of change in applications, including distance, velocity, and acceleration.	C.3.10 Find average and instantaneous rates of change. Understand the instantaneous rate of change as the limit of the average rate of change. Interpret a derivative as a rate of change in applications, including velocity, speed, and acceleration.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.11:	C.AD.11: Find the velocity and acceleration of a particle moving in a straight line.	C.3.11 Find the velocity and acceleration of a particle moving in a straight line.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AD.12:	C.AD.12: Model rates of change, including related rates problems.	C.3.12 Model rates of change, including related rates problems.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
Integrals				
MA.C.I.1:	C.I.1: Use rectangle approximations to find approximate values of integrals.	C.4.1 Use rectangle approximations to find approximate values of integrals.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.I.2:	C.I.2: Calculate the values of Riemann Sums over equal subdivisions using left, right, and midpoint evaluation points.	C.4.2 Calculate the values of Riemann Sums over equal subdivisions using left, right, and midpoint evaluation points.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.I.3:	C.I.3: Interpret a definite integral as a limit of Riemann Sums.	C.4.3 Interpret a definite integral as a limit of Riemann Sums.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.I.4:	C.I.4: Understand the Fundamental Theorem of Calculus: Interpret a definite integral of the rate of change of a quantity over an interval as the change of the quantity over the interval, that is $\int_a^b f'(x)dx = f(b) - f(a)$	C.4.4 Understand the Fundamental Theorem of Calculus: Interpret a definite integral of the rate of change of a quantity over an interval as the change of the quantity over the interval, that is $\int_a^b f'(x)dx = f(b) - f(a)$		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.I.5:	C.I.5: Use the Fundamental Theorem of Calculus to evaluate definite and indefinite integrals and to represent particular antiderivatives. Perform analytical and graphical analysis of functions so defined.	C.4.5 Use the Fundamental Theorem of Calculus to evaluate definite and indefinite integrals and to represent particular antiderivatives. Perform analytical and graphical analysis of functions so defined.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards

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MA.C.I.6:	C.I.6: Understand and use these properties of definite integrals. $\int_a^b [f(x)+g(x)]dx = \int_a^b f(x)dx + \int_a^b g(x)dx$ $\int_a^b k\,f(x)dx = k\int_a^b f(x)dx$ $\int_a^a f(x)dx = 0$ $\int_a^b f(x)dx = -\int_b^a f(x)dx$ $\int_a^b f(x)dx + \int_b^c f(x)dx = \int_a^c f(x)dx$ $If\ f(x) \le g(x)\ on\ [a,b],\ then\ \int_a^b f(x)dx \le \int_a^b g(x)dx$	C.4.6 Understand and use these properties of definite integrals: $\int_a^b [f(x)+g(x)]dx = \int_a^b f(x)dx + \int_a^b g(x)dx$ $\int_a^b k\,f(x)dx = k\int_a^b f(x)dx$ $\int_a^a f(x)dx = 0$ $\int_a^b f(x)dx = -\int_b^a f(x)dx$ $\int_a^b f(x)dx + \int_b^c f(x)dx = \int_a^c f(x)dx$ $If\ f(x) \le g(x)\ on\ [a,b],\ then\ \int_a^b f(x)dx \le \int_a^b g(x)dx$		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.I.7:	C.I.7: Understand and use integration by substitution (or change of variable) to find values of integrals.	C.4.7 Understand and use integration by substitution (or change of variable) to find values of integrals.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.I.8:	C.I.8: Understand and use Riemann Sums, the Trapezoidal Rule, and technology to approximate definite integrals of functions represented algebraically, geometrically, and by tables of values.	C.4.8 Understand and use Riemann Sums, the Trapezoidal Rule, and technology to approximate definite integrals of functions represented algebraically, geometrically, and by tables of values.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
		Applications of Integrals		
MA.C.AI.1:	C.AI.1: Find specific antiderivatives using initial conditions, including finding velocity functions from acceleration functions, finding position functions from velocity functions, and applications to motion along a line.	C.5.1 Find specific antiderivatives using initial conditions, including finding velocity functions from acceleration functions, finding position functions from velocity functions, and applications to motion along a line.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AI.2:	C.AI.2: Solve separable differential equations and use them in modeling real-world problems with and without technology.	C.5.2 Solve separable differential equations and use them in modeling.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AI.3:	C.AI.3: Solve differential equations of the form y' = ky as applied to growth and decay problems.	C.5.3 Solve differential equations of the form y' = ky as applied to growth and decay problems.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AI.4:	C.AI.4: Use definite integrals to find the area between a curve and the x-axis, or between two curves.	C.5.4 Use definite integrals to find the area between a curve and the x-axis, or between two curves.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AI.5:	C.AI.5: Use definite integrals to find the average value of a function over a closed interval.	C.5.5 Use definite integrals to find the average value of a function over a closed interval.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AI.6:	C.AI.6: Use definite integrals to find the volume of a solid with known cross-sectional area.	C.5.6 Use definite integrals to find the volume of a solid with known cross-sectional area.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards
MA.C.AI.7:	C.AI.7: Apply integration to model and solve (with and without technology) real-world problems in physics, biology, economics, etc., using the integral as a rate of change to give accumulated change and using the method of setting up an approximating Riemann Sum and representing its limit as a definite integral.	C.5.7 Apply integration to model and solve problems in physics, biology, economics, etc., using the integral as a rate of change to give accumulated change and using the method of setting up an approximating Riemann Sum and representing its limit as a definite integral.		The IAS 2014 is identical to the IAS 2000 and the CCSS did not have Calculus Standards