



Grade 7 Mathematics

This document provides correlations between the 2023 Indiana Academic Standards and the 2020 Indiana Academic Standards for easy reference.

The 2023 Indiana Academic Standards resulted from the standards streamlining process required by Indiana Code 20-31-3-1(c-d) and were adopted by the Indiana State Board of Education in June 2023. Standards designated as essential (E) are shaded in gray and all standards were renumbered to avoid gaps in sequencing.

2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Number Sense		Domains: Number Sense/Computation	
Number	Text	Number	Text
7.NS.1	Show on a number line that a number and its opposite have a sum of 0 (are additive inverses). Find and interpret sums of rational numbers in real-world contexts.	7.C.1	Understand $p + q$ as the number located a distance $ q $ from p , in the positive or negative direction, depending on whether q is positive or negative. Show on a number line that a number and its opposite have a sum of 0 (are additive inverses). Find and interpret sums of rational numbers in real-world contexts.
7.NS.2	Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.	7.C.2	Understand subtraction of rational numbers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two rational numbers on the number line is the absolute value of their difference, and apply this principle in real-world contexts.
7.NS.3	Use the properties of operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed	7.C.3	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of

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	numbers. (E)		operations, particularly the distributive property, leading to products such as $(-1)(-1) = 1$ and the rules for multiplying signed numbers.
7.NS.4	Explain that if p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$ for all nonzero integers. (E)	7.C.4	Understand that integers can be divided, provided that the divisor is not zero. Understand that if p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$.
7.NS.5	Find the prime factorization of whole numbers and write the results using exponents.	7.NS.1	Find the prime factorization of whole numbers and write the results using exponents.
7.NS.6	Apply the inverse relationship between squaring and finding the square root of a perfect square whole number. Find square roots of perfect square whole numbers.	7.NS.2	Understand the inverse relationship between squaring and finding the square root of a perfect square whole number. Find square roots of perfect square whole numbers.
7.NS.7	Compute fluently with rational numbers using an algorithmic approach. (E)	7.C.7	Compute fluently with rational numbers using an algorithmic approach.
		7.NS.3	Know there are rational and irrational numbers. Identify, compare, and order rational and irrational numbers (e.g., $\sqrt{2}$, $\sqrt{3}$, $\sqrt{5}$, π) and plot them on a number line.
		7.C.5	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas, and other quantities measured in like or different units.

2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Ratios and Proportional Reasoning		Domain: Computation/Algebra and Functions	
Number	Text	Number	Text
7.RP.1	Identify the unit rate or constant of proportionality in tables, graphs, equations, and verbal descriptions of proportional relationships.	7.AF.7	Identify the unit rate or constant of proportionality in tables, graphs, equations, and verbal descriptions of proportional relationships.
7.RP.2	Use proportional relationships to solve ratio and percent problems with multiple operations (e.g., simple interest, tax, markups, markdowns, gratuities, conversions within and across measurement systems, and percent increase and decrease). (E)	7.C.6	Use proportional relationships to solve ratio and percent problems with multiple operations (e.g., simple interest, tax, markups, markdowns, gratuities, conversions within and across measurement systems, and percent increase and decrease).
7.RP.3	Represent real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent these proportional relationships. Apply the definition of unit rate to $y = mx$. (E)	7.AF.9	Represent real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent these proportional relationships. Recognize that these situations are described by a linear function in the form $y = mx$, where the unit rate, m , is the slope of the line.
2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Algebra and Functions		Domain: Algebra and Functions	
Number	Text	Number	Text
7.AF.1	Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring out a	7.AF.1	Apply the properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring out a

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	common number (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process. (E)		common number (e.g., given $2x - 10$, create an equivalent expression $2(x - 5)$). Justify each step in the process.
7.AF.2	Solve real-world problems with rational numbers by using one or two operations. (E)	7.C.8	Solve real-world problems with rational numbers by using one or two operations.
7.AF.3	Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems. (E)	7.AF.2	Solve equations of the form $px + q = r$ and $p(x + q) = r$ fluently, where p , q , and r are specific rational numbers. Represent real-world problems using equations of these forms and solve such problems.
7.AF.4	Solve inequalities of the form $px + q (> \text{ or } \geq) r$ or $px + q (< \text{ or } \leq) r$, where p , q , and r are specific rational numbers. Represent real-world problems using inequalities of these forms and solve such problems. Graph the solution set of the inequality and interpret it in the context of the problem.	7.AF.3	Solve inequalities of the form $px + q (> \text{ or } \geq) r$ or $px + q (< \text{ or } \leq) r$, where p , q , and r are specific rational numbers. Represent real-world problems using inequalities of these forms and solve such problems. Graph the solution set of the inequality and interpret it in the context of the problem.
7.AF.5	Define slope as vertical change for each unit of horizontal change, and apply that a constant rate of change or constant slope describes a linear function. Identify and describe situations with constant or varying rates of change.	7.AF.4	Define slope as vertical change for each unit of horizontal change and recognize that a constant rate of change or constant slope describes a linear function. Identify and describe situations with constant or varying rates of change.
7.AF.6	Graph a line given its slope and a point on the line. Find the slope of a line given its graph. (E)	7.AF.5	Graph a line given its slope and a point on the line. Find the slope of a line given its graph.
		7.AF.6	Decide whether two quantities are in a proportional relationship (e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line)

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			through the origin).
		7.AF.8	Explain what the coordinates of a point on the graph of a proportional relationship mean in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$, where r is the unit rate.
2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Geometry and Measurement		Domain: Geometry and Measurement	
Number	Text	Number	Text
7.GM.1	Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.	7.GM.3	Solve real-world and other mathematical problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing. Create a scale drawing by using proportional reasoning.
7.GM.2	Understand the formulas for area and circumference of a circle and use them to solve real-world and other mathematical problems; give an informal derivation of the relationship between circumference and area of a circle.	7.GM.5	Understand the formulas for area and circumference of a circle and use them to solve real-world and other mathematical problems; give an informal derivation of the relationship between circumference and area of a circle.
7.GM.3	Solve real-world and other mathematical problems involving volume of cylinders and three-dimensional objects composed of right rectangular prisms. (E)	7.GM.6	Solve real-world and other mathematical problems involving volume of cylinders and three-dimensional objects composed of right rectangular prisms.
		7.GM.1	Explore triangles with given conditions from three measures of angles or sides, noticing when the conditions determine a unique triangle, more than one triangle, or no triangle.

		7.GM.2	Identify and describe similarity relationships of polygons including the angle-angle criterion for similar triangles, and solve problems involving similarity.
		7.GM.4	Solve real-world and other mathematical problems using facts about vertical, adjacent, complementary, and supplementary angles.
		7.GM.7	Construct nets for right rectangular prisms and cylinders and use the nets to compute the surface area; apply this technique to solve real-world and other mathematical problems.
2023 Indiana Academic Standard		2020 Indiana Academic Standard	
Domain: Data Analysis, Statistics, and Probability		Domain: Data Analysis, Statistics, and Probability	
Number	Text	Number	Text
7.DSP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population. Understand that conclusions and generalizations about a population from a sample are valid only if the sample is representative of that population and that random sampling tends to produce representative samples and support valid inferences. (E)	7.DSP.1	Understand that statistics can be used to gain information about a population by examining a sample of the population. Understand that conclusions and generalizations about a population from a sample are valid only if the sample is representative of that population and that random sampling tends to produce representative samples and support valid inferences.
7.DSP.2	Find, use, and interpret measures of central tendency (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two	7.DSP.3	Find, use, and interpret measures of center (mean and median) and measures of spread (range, interquartile range, and mean absolute deviation) for numerical data from random samples to draw comparative inferences about two populations.

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	populations. (E)		
7.DSP.3	Make observations about the degree of visual overlap of two numerical data distributions represented in line plots or box plots. Describe how data, particularly outliers, added to a data set may affect the mean and/or median.	7.DSP.4	Make observations about the degree of visual overlap of two numerical data distributions represented in line plots or box plots. Describe how data, particularly outliers, added to a data set may affect the mean and/or median.
7.DSP.4	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Understand that a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. Understand that a probability of 1 indicates an event certain to occur and a probability of 0 indicates an event impossible to occur. Identify probabilities of events as impossible, unlikely, equally likely, likely, or certain. (E)	7.DSP.5	Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Understand that a probability near 0 indicates an unlikely event, a probability around 1/2 indicates an event that is neither unlikely nor likely, and a probability near 1 indicates a likely event. Understand that a probability of 1 indicates an event certain to occur and a probability of 0 indicates an event impossible to occur. Identify probabilities of events as impossible, unlikely, equally likely, likely, or certain.
7.DSP.5	Develop probability models that include the sample space and probabilities of outcomes to represent simple events with equally likely outcomes. Predict the approximate relative frequency of the event based on the model. Compare probabilities from the model to observed frequencies, evaluate the level of agreement, and explain possible sources of discrepancy. (E)	7.DSP.7	Develop probability models that include the sample space and probabilities of outcomes to represent simple events with equally likely outcomes. Predict the approximate relative frequency of the event based on the model. Compare probabilities from the model to observed frequencies; evaluate the level of agreement and explain possible sources of discrepancy.
		7.DSP.2	Use data from a random sample to draw inferences about a population. Generate multiple samples (or

		simulated samples) of the same size to gauge the variation in estimates or predictions.
	7.DSP.6	Approximate the probability of a chance event by collecting data on the chance process that produces it and observing its relative frequency from a large sample.