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Indiana Academic Standards for Mathematics GRADE 7
Correlated to *Moving with Math* FOUNDATIONS for ALGEBRA
Middle/High (MH)

		MH1 *Number Sense, Reasoning, & Data* Student Book Skill Builders (SB)	MH2 *Fractions & Decimals* Student Book Skill Builders (SB)	MH3 *Percent & Probability* Student Book Skill Builders (SB)	MH4 *Geometry & Measurement* Student Book Skill Builders (SB)	MH5 *Algebra* Student Book Skill Builders (SB)
7.NS	**NUMBER SENSE**					
1.	Find the prime factorization of whole numbers and write the results using exponents.	21, 27 **SB:** 3-3				
2.	Understand the inverse relationship between squaring and finding the square root of a perfect square integer. Find square roots of perfect square integers.	23 **SB:** 54-2				
3.	Know there are rational and irrational numbers. Identify, compare, and order rational and common irrational numbers (√2, √3, √5, π) and plot them on a number line.		55 **SB:** 65-1			
7.C	**COMPUTATION**					

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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 that a number and its opposite have a sum of 0 (are additive inverses). Interpret sums of rational numbers by describing real-world contexts.					6-8, 15, 16 **SB:** 48-3, 58-1, 58-9
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.					16, 19 **SB:** 58-3
3.	Understand that multiplication is extended from fractions to rational numbers by requiring that operations continue to satisfy the properties of operations, particularly the distributive property, leading to products such as (-1)(-1) = 1 and the rules for multiplying signed numbers.					20-22 **SB:** 58-4, 58-10
4.	Understand that integers can be divided, provided that the divisor is not zero, and every quotient of integers (with non-zero divisor) is a rational number. Understand that if p and q are integers, then $-(p/q) = (-p)/q = p/(-q).$					23-25 **SB:** 58-5
5.	Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.					

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6.	Use proportional relationships to solve ratio and percent problems problems with multiple operations, such as the following: simple interest, tax, markups, markdowns, gratuities, commissions, fees, conversions within and across measurement systems, percent increase and decrease, and percent error.		38 **SB:** 46-1	34, 35, 49-52 **SB:** 28-5, 43-3, 46-1, 51-1		
7.	Compute with rational numbers fluently using a standard algorithmic approach.		13-20, 24-31, 56-67 **SB:** 12-3 to 12-6, 13-1 to 13-4, 14-1, 14-2, 15-1, 15-2, 16-1, 17-1, 17-2, 17-3, 21-1 to 21-3, 22-1, 22-2, 23-1 to 23-3			
8.	Solve real-world problems with rational numbers by using one or two operations.		19, 20, 22, 23, 27, 29, 32, 33, 35, 36, 57, 58, 63, 67, 69, 71-74 **SB:** 43-1, 43-1, 44-1			
7.AF	**ALGEBRA AND FUNCTIONS**					
1.	Apply properties of operations (e.g., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions, including situations that involve factoring (e.g., given 2x – 10, create an equivalent expression 2(x – 5)). Justify each step in the process.					36, 37, 49, 50 **SB:** 59-3 to 59-5

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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.	**SB:** 43-6, 43-7	36, 73			46, 47 **SB:** 50-4
3.	Solve inequalities of the form $px + q$ (> or ≥) r and $px + q$ (< or ≤) 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.					54, 55 **SB:** 50-5
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.					77
5.	Graph a line given its slope and a point on the line. Find the slope of a line given its graph.					77
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 through the origin).		37 **SB:** 46-2	24		
7.	Identify the unit rate or constant of proportionality in tables, graphs, equations, and verbal descriptions of proportional relationships.			22		63

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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.					
9.	Identify real-world and other mathematical situations that involve proportional relationships. Write equations and draw graphs to represent proportional relationships and 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.					62, 63
7.GM	**GEOMETRY AND MEASUREMENT**					
1.	Draw triangles (freehand, with ruler and protractor, and using technology) with given conditions from three measures of angles or sides, and notice when the conditions determine a unique triangle, more than one triangle, or no triangle.				7 **SB:** 32-3	
2.	Identify and describe similarity relationships of polygons including the angle-angle criterion for similar triangles, and solve problems involving similarity.				24, 25 **SB:** 53-2	
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.				30-32 **SB:** 46-3	

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4.	Solve real-world and other mathematical problems that involve vertical, adjacent, complementary and supplementary angles.							17-19 **SB:** 33-1, 33-2		
5.	Understand the formulas for the 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.							63, 68 **SB:** 39-1, 56-1		
6.	Solve real-world and other mathematical problems involving volume of cylinders and three-dimensional objects composed of right rectangular prisms.							73 **SB:** 41-2		
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.							75, 76 **SB:** 62-2		
7.DSP	**DATA ANALYSIS, STATISTICS, AND PROBABILITY**									
1.	Understand that statistics can be used to gain information about a population by examining a sample of the population and generalizations about a population from a sample are valid only if the sample is representative of that population. Understand that random sampling tends to produce representative samples and support valid inferences.	77 **SB:** 68-7								

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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.	67, 77 **SB:** 68-4				
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.	56-58 **SB:** 45-3, 45-6				
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.	72 **SB:** 67-3				
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.		78 **SB:** 47-1	64 **SB:** 47-1		
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.			63, 64, 67, 74 **SB:** 47-4, 47-6		

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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.		78 **SB:** 47-1	61-64, 66, 67, 74 **SB:** 47-1, 47-2, 47-4, 47-6		