

7th Grade BIE Essential Math Standards

Interim 1 Standards

1.	M.BIES.6.EE.A.04	The Highly Proficient student can use variables to represent numbers and write expressions when solving mathematical problems and problems in real-world context; understand that a variable can represent an unknown number or any number in a specified set. (6-8 days)
2.	M.BIES.7.G.A.01	The Highly Proficient student can use a scale drawing to calculate the actual dimensions of a figure and reproduce a scale drawing using a different scale. (6-8 days)
3.	M.BIES.7.RPA.01	The Highly Proficient student can compute unit rates associated with ratios involving both simple and complex fractions, including ratios of quantities measured in like or different units. (6-8 days)
4.	M.BIES. 7.RPA.02.a	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. (4-6 days)
5.	M.BIES.7.RPA.02.b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships. (6-8 days)
6.	M.BIES.7.RPA.02.c	Represent proportional relationships by equations. For example, if total cost t is proportional to the number n of items purchased at a constant price p , the relationship between the total cost and the number of items can be expressed as $t = pn$. (6-8 days)
7.	M.BIES.7.RPA.02.d	Explain what a point (x, y) on the graph of a proportional relationship means in terms of the situation, with special attention to the points $(0, 0)$ and $(1, r)$ where r is the unit rate. (4-6 days)
8.	M.BIES.7.RPA.03	The Highly Proficient student can create equivalent proportional equations that could be used to solve the same ratio/percent problem. (6-8 days)

Suggested Standards:

9.	M.BIES.7.EE.A.02	The Highly Proficient student can rewrite an expression in different forms, and understand the relationship between the different forms and their meanings in a problem context. For example, $a + 0.05a = 1.05a$ means that "increase by 5%" is the same as "multiply by 1.05."
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Interim 2 Standards

1.	M.BIES 7.NS.A.01.a	Describe situations in which opposite quantities combine to make 0. For example, a hydrogen atom has 0 charge because its two constituents are oppositely charged.
2.	M.BIES 7.NS.A.01.b	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.
3.	M.BIES..7.NS.A.01.c	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.

4.	M.BIES..7.NS.A.01.d	Apply properties of operations as strategies to add and subtract rational numbers.
5.	M.BIES.7.NS.A.02.a	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. Interpret products of rational numbers by describing real-world contexts.
6.	M.BIES 7.NS.A.02.b	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. If p and q are integers, then $-(p/q) = (-p)/q = p/(-q)$. Interpret quotients of rational numbers by describing real-world contexts.
7.	M.BIES 7.NS.A.02.c	Apply properties of operations as strategies to multiply and divide rational numbers.
8.	M.BIES.7.NS.A.03	Solve real-world and mathematical problems involving the four operations with rational numbers.
9.	M.BIES.7.RPA.02.b	Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships
Suggested Standard:		
10.	M.BIES.7.G.A.02	The Highly Proficient student can justify the conditions for a unique triangle, more than one triangle or no triangle.
Interim 3 Standards		
1.	M.BIES.7.EE.A.01	The Highly Proficient student can apply mathematical properties to expand linear expressions, create equivalent expressions, and explain key terms and factors.
2.	M.BIES.7.EE.B.03	The Highly Proficient student can solve multi-step mathematical problems and problems in real-world context posed with positive and negative rational numbers in any form. Convert between forms as appropriate and assess the reasonableness of answers. For example, If a woman making \$25 an hour gets a 10% raise, she will make an additional $1/10$ of her salary an hour, or \$2.50, for a new salary of \$27.50 per hour.
3.	M.BIES.7.EE.B.04.a	The Highly Proficient student can create a model and solve real-world or mathematical problems using equations with rational coefficients and explains what the solution means.
4.	M.BIES.7.EE.B.04.b	The Highly Proficient student can create a model and solve real-world or mathematical problems using inequalities with rational coefficients and explains what the solution means.
5.	M.BIES.7.G.B.04	The Highly Proficient student can explain why the formulas for area and circumference work and explain the relationship between area of a circle and area of a parallelogram.
6.	M.BIES.7.G.B.05	The Highly Proficient student can write and solve multi-step equations to find missing angles formed by intersecting lines.
7.	M.BIES.7.G.B.06	Solve real-world and mathematical problems involving area, volume and surface area of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms.
Suggested Standards:		

8. M.BIES.7.SP.C.06	The Highly Proficient student can recognize and justify the relationship between the experimental and theoretical probability.
9. M.BIES.7.SP.A.01	The Highly Proficient student can understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are valid only if the sample is representative of that population. The Highly Proficient student can understand that random sampling tends to produce representative samples and support valid inferences.
10. M.BIES.7.SP.B.03	The Highly Proficient student can compare two visual representations of data to make comparative inferences, using measures of central tendency and variability, about two populations in context.
11. M.BIES.7.SP.B.04	The Highly Proficient student can use measures of center and measures of variability for numerical data from random samples to draw informal comparative
12. M.BIES.7.SP.C.05	The Highly Proficient student can understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring. Larger numbers indicate greater likelihood. 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.
13. M.BIES.7.SP.C.07:	The Highly Proficient student can develop a probability model and use it to find probabilities of events. The Highly Proficient student can compare probabilities from a model to observed frequencies; if the agreement is not good, explain possible sources of the discrepancies.