Mathematics

Grade 6

PA Alternate Eligible Content

PA Reporting Category: M06.A-N The Number System

PA Core Standards:
CC.2.1.6.E.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

Assessment Anchor
M06.A-N.1 Apply and extend previous understandings of multiplication and division to divide fractions by fractions.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.A-N.1.1 **Solve real-world and mathematical problems involving division of fractions.**	**M06.A-N.1.1.1** **Interpret and compute quotients of fractions (including mixed numbers), and solve word problems involving division of fractions by fractions.** **Example 1: Given a story context for (2/3) ÷ (3/4), explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = (a/b) × (d/c) = ad/bc.)** **Example 2: How wide is a rectangular strip of land with length 3/4 mi and area 1/2 square mi?** **Example 3: How many 2 1/4-foot pieces can be cut from a 15 1/2-foot board?**		

PA Reporting Category: M06.A-N The Number System

PA Core Standards:
CC.2.1.6.E.2 Identify and choose appropriate processes to compute fluently with multi-digit numbers.
CC.2.1.6.E.3 Develop and/or apply number theory concepts to find common factors and multiples.

Assessment Anchor
M06.A-N.2 Compute with multi-digit numbers and find common factors and multiples.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.A-N.2.1 **Compute with multi-digit numbers using the four arithmetic operations with or without a calculator.**	**M06.A-N.2.1.1** **Solve problems involving operations (+, −, ×, and ÷) with whole numbers, decimals (through thousandths), straight computation, or word problems.**	**M06AN2.1.1a**	**Solve a problem using up to 3-digit whole numbers and any of the four operations**
M06.A-N.2.2 **Apply number theory concepts (specifically factors and multiples).**	**M06.A-N.2.2.1** **Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12.**	**M06AN2.2.1a**	**Identify multiples for numbers 5, 10, 25, or 100**
	M06.A-N.2.2.2 **Apply the distributive property to express a sum of two whole numbers, 1 through 100, with a common factor as a multiple of a sum of two whole numbers with no common factor.** **Example: Express 36 + 8 as 4(9 + 2).**		

PA Reporting Category: M06.A-N The Number System

PA Core Standards:
CC.2.1.6.E.4 Apply and extend previous understandings of numbers to the system of rational numbers.

Assessment Anchor
M06.A-N.3 Apply and extend previous understandings of numbers to the system of rational numbers.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.A-N.3.1 Understand that positive and negative numbers are used together to describe quantities having opposite directions or values and locations on the number line and coordinate plane.	**M06.A-N.3.1.1 Represent quantities in real-world contexts using positive and negative numbers, explaining the meaning of 0 in each situation (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge).**	M06AN3.1.1a	**Identify a specific integer in a real-world context**
	M06.A-N.3.1.2 Determine the opposite of a number and recognize that the opposite of the opposite of a number is the number itself (e.g., –(–3) = 3; 0 is its own opposite).	M06AN3.1.2a	**Identify the opposite of a number on the number line**
	M06.A-N.3.1.3 Locate and plot integers and other rational numbers on a horizontal or vertical number line; locate and plot pairs of integers and other rational numbers on a coordinate plane.	M06AN3.1.3a	**Locate positive and negative numbers on the number line**
M06.A-N.3.2 Understand ordering and absolute value of rational numbers.	**M06.A-N.3.2.1 Write, interpret, and explain statements of order for rational numbers in real-world contexts. Example: Write –3°C > –7°C to express the fact that 3°C is warmer than –7°C.**		
	M06.A-N.3.2.2 Interpret the absolute value of a rational number as its distance from 0 on the number line and as a magnitude for a positive or negative quantity in a real-world situation. Example: For an account balance of –30 dollars, write |–30| = 30 to describe the size of the debt in dollars, and recognize that an account balance less than –30 dollars represents a debt greater than 30 dollars.		
	M06.A-N.3.2.3 Solve real-world and mathematical problems by plotting points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	M06AN3.2.3a	**Identify points in all four quadrants of the coordinate plane**

PA Reporting Category: M06.A-R Ratios and Proportional Relationships

PA Core Standards:
CC.2.1.6.D.1 Understand ratio concepts and use ratio reasoning to solve problems.

Assessment Anchor
M06.A-R.1 Understand ratio concepts and use ratio reasoning to solve problems.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.A-R.1.1 **Represent and/or solve real-world and mathematical problems using rates, ratios, and/or percents.**	**M06.A-R.1.1.1** **Use ratio language and notation (such as 3 to 4, 3:4, 3/4) to describe a ratio relationship between two quantities.** **Example 1: "The ratio of girls to boys in a math class is 2:3 because for every 2 girls there are 3 boys."** **Example 2: "For every five votes candidate A received, candidate B received four votes."**		
	M06.A-R.1.1.2 **Find the unit rate a/b associated with a ratio a:b (with b ≠ 0) and use rate language in the context of a ratio relationship.** **Example 1: "This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is 3/4 cup of flour for each cup of sugar."** **Example 2: "We paid $75 for 15 hamburgers, which is a rate of $5 per hamburger."**	M06AR1.1.2a	**Identify the ratio that matches a given statement and/or representation**
	M06.A-R.1.1.3 **Construct tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and/or plot the pairs of values on the coordinate plane. Use tables to compare ratios.**		
	M06.A-R.1.1.4 **Solve unit rate problems including those involving unit pricing and constant speed.** **Example: If it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?**	M06AR1.1.4a	**Solve a 1-step real-world problem given the unit rate**
	M06.A-R.1.1.5 **Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percentage.**	M06AR1.1.5a	**Calculate a percent of a quantity as a rate per 100**

PA Reporting Category: M06.B-E Expressions and Equations

PA Core Standards:
CC.2.2.6.B.1 Apply and extend previous understandings of arithmetic to algebraic expressions.

Assessment Anchor
M06.B-E.1 Apply and extend previous understandings of arithmetic to numerical and algebraic expressions.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.B-E.1.1 **Identify, write, and evaluate numerical and algebraic expressions.**	**M06.B-E.1.1.1** **Write and evaluate numerical expressions involving whole-number exponents.**		
	M06.B-E.1.1.2 **Write algebraic expressions from verbal descriptions.** **Example: Express the description "five less than twice a number" as 2y – 5.**		
	M06.B-E.1.1.3 **Identify parts of an expression using mathematical terms (e.g., sum, term, product, factor, quotient, coefficient, quantity).** **Example: Describe the expression 2(8 + 7) as a product of two factors.**		
	M06.B-E.1.1.4 **Evaluate expressions at specific values of their variables, including expressions that arise from formulas used in real-world problems.** **Example: Evaluate the expression b^2 – 5 when b = 4.**		
	M06.B-E.1.1.5 **Apply the properties of operations to generate equivalent expressions.** **Example 1: Apply the distributive property to the expression 3 (2 + x) to produce the equivalent expression 6 + 3x.** **Example 2: Apply the distributive property to the expression 24x + 18y to produce the equivalent expression 6(4x + 3y).** **Example 3: Apply properties of operations to y + y + y to produce the equivalent expression 3y.**		

PA Reporting Category: M06.B-E Expressions and Equations

PA Core Standards:
CC.2.2.6.B.2 Understand the process of solving a one-variable equation or inequality and apply to real-world and mathematical problems.

Assessment Anchor
M06.B-E.2 Interpret and solve one-variable equations and inequalities.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.B-E.2.1 **Create, solve, and interpret one-variable equations or inequalities in real-world and mathematical problems.**	**M06.B-E.2.1.1** **Use substitution to determine whether a given number in a specified set makes an equation or inequality true.**		
	M06.B-E.2.1.2 **Write algebraic expressions to represent real-world or mathematical problems.**	**M06BE2.1.2a**	**Select an algebraic expression involving addition or subtraction of whole numbers to solve a 1-step real-world problem**
	M06.B-E.2.1.3 **Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q, and x are all non-negative rational numbers.**	**M06BE2.1.3a**	**Use a 1-step algebraic expression to solve a real-world problem involving addition or subtraction of whole numbers**
	M06.B-E.2.1.4 **Write an inequality of the form x > c or x < c to represent a constraint or condition in a real-world or mathematical problem and/or represent solutions of such inequalities on number lines.**		

PA Reporting Category: M06.B-E Expressions and Equations

PA Core Standards:
CC.2.2.6.B.3 Represent and analyze quantitative relationships between dependent and independent variables.

Assessment Anchor
M06.B-E.3 Represent and analyze quantitative relationships between dependent and independent variables.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.B-E.3.1 **Use variables to represent two quantities in a real-world problem that change in relationship to one another.**	**M06.B-E.3.1.1** **Write an equation to express the relationship between the dependent and independent variables.** **Example: In a problem involving motion at a constant speed of 65 units, write the equation d = 65t to represent the relationship between distance and time.**	**M06BE3.1.1a**	**Identify the relationship between two variables in an equation**
	M06.B-E.3.1.2 **Analyze the relationship between the dependent and independent variables using graphs and tables and/or relate these to an equation.**		

PA Reporting Category: M06.C-G Geometry

PA Core Standards:
CC.2.3.6.A.1 Apply appropriate tools to solve real-world and mathematical problems involving area, surface area, and volume.

Assessment Anchor
M06.C-G.1 Solve real-world and mathematical problems involving area, surface area, and volume.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.C-G.1.1 **Find area, surface area, and volume by applying formulas and using various strategies.**	**M06.C-G.1.1.1** **Determine the area of triangles and special quadrilaterals (i.e., square, rectangle, parallelogram, rhombus, and trapezoid). Formulas will be provided.**	**M06CG1.1.1a**	**Find the area of a quadrilateral given the dimensions**
	M06.C-G.1.1.2 **Determine the area of irregular or compound polygons.** **Example: Find the area of a room in the shape of an irregular polygon by composing and/or decomposing.**		
	M06.C-G.1.1.3 **Determine the volume of right rectangular prisms with fractional edge lengths. Formulas will be provided.**	**M06CG1.1.3a**	**Solve a real-world problem involving volume using unit cubes or multiplication**
	M06.C-G.1.1.4 **Given coordinates for the vertices of a polygon in the plane, use the coordinates to find side lengths and area of the polygon (limited to triangles and special quadrilaterals). Formulas will be provided.**		
	M06.C-G.1.1.5 **Represent three-dimensional figures using nets made of rectangles and triangles.**	**M06CG1.1.5a**	**Classify three-dimensional figures**
	M06.C-G.1.1.6 **Determine the surface area of triangular and rectangular prisms (including cubes). Formulas will be provided.**		

PA Reporting Category: M06.D-S Statistics and Probability

PA Core Standards:
CC.2.4.6.B.1 Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions.

Assessment Anchor
M06.D-S.1 Demonstrate understanding of statistical variability by summarizing and describing distributions.

DESCRIPTOR	ELIGIBLE CONTENT	Alternate Eligible Content Code	ALTERNATE ELIGIBLE CONTENT
M06.D-S.1.1 **Display, analyze, and summarize numerical data sets in relation to their context.**	**M06.D-S.1.1.1** **Display numerical data in plots on a number line, including line plots, histograms, and box-and- whisker plots.**		
	M06.D-S.1.1.2 **Determine quantitative measures of center (e.g., median, mean, mode) and variability (e.g., range, interquartile range, mean absolute deviation).**	**M06DS1.1.2a**	**Identify measures of central tendency (mean, median, mode)**
	M06.D-S.1.1.3 **Describe any overall pattern and any deviations from the overall pattern with reference to the context in which the data were gathered.**	**M06DS1.1.3a**	**Compare points in a line plot, histogram, or on a number line**
	M06.D-S.1.1.4 **Relate the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.**		