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D, M
I, E, B,



(400)

- M05_02* Solves a word problem by adding numbers with up to three decimal places.
- M06_07* Multiplies a two-place decimal by a three-place decimal.
- M06_11 Solves a word problem involving a proportion with unit ratio.
- M06_11* Solves a word problem involving a proportion with unit ratio.
- M13_08 Selects two-place decimal closest to a given whole number.

M10_06 Selects the most appropriate metric unit to measure a large area.

M12_13A Selects the appropriate line on a graph and reads information from it.

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- M03_04 Arranges four given digits in descending and ascending order and finds the difference between those two numbers.
- M04_05 Solves a word problem involving subtraction of a two-place decimal number from another.
- M04_06 Writes a fraction less than a given fraction.
- M05_01 Identifies a circular model of a fraction that best approximates a given rectangular model of the same fraction.
- M05_02 Solves a word problem by adding numbers with up to three decimal places.
- M05_06 Selects the approximate quantity remaining after an amount is decreased by a given percent.
- M06_03 Selects the smallest fraction from a set of familiar fractions.
- M06_12* Solves a word problem about distance and time by finding the missing term in a proportion.
- M10_01 Solves a word problem involving addition and multiplication of two-digit whole numbers.
- M11_01 Identifies the decimal number that is equivalent to the sum of two fractions whose denominators are powers of ten.
- M13_01 Uses knowledge of exponential notation to select approximations to two squared whole numbers.
- M14_01 Rounds two-place decimals to whole numbers.

M01_02 Using properties of a balance, reasons to find an unknown weight (mass).

M01_10 Solves equation for missing number in a proportion.

M02_12 Selects the formula satisfied by the given values of the variables.

M03_01 Solves problem by interpreting information from a graph of two intersecting lines.

* Data for 2003 TIMSS

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- M07_02 Recognizes the product of two algebraic terms in one variable that involve exponents.
- M07_10 Identifies the linear equation represented by a set of ordered pairs given in a table.
- M10_04 Solves a simultaneous linear equations.
- M11_05 Identifies the algebraic expression that represents a situation involving the sum of a constant term and a product.
- M11_06 Uses a formula to determine the value of one variable given the value of the other.
- M12_12 Identifies the quantity that satisfies two inequalities represented by balances.
- M13_05 Extends a geometric tiling pattern to identify the orientation of a tile.
- M13_10 Simplifies an algebraic expression combining like terms.
- M13_11 Solves a pair of simultaneous linear equations.
- M14_09 Given an interval containing a number, determines the interval containing the sum of that number and a whole number.

- M01_03 Given a length rounded to the nearest centimeter, identifies what the actual length could have been in centimeters to one decimal place.
- M02_01 Compares volume by visualizing and counting cubes.
- M03_12 Given the start time, and the duration of an event expressed as a fraction of an hour, determines the end time.
- M04_07 Finds the area between two rectangles when one is inside the other and their sides are parallel.
- M04_11B Finds the length of a side of a square, given that its area is a square number.
- M05_05 Finds the perimeter of a square given that its area is a square number less than 150.
- M05_12 Finds the area of a triangle, on the same base and with the same height as a square, when the length of a side of the square is known.
- M07_04 Calculates the volume of a rectangular prism by using appropriate measures from its net.
- M08_08 Calculates the area of an irregular figure formed by two rectangles.
- M09_07A Solves a word problem to find average speed given distance and time.
- M09_09 Given two touching circles of equal radius, finds the area of rectangle that encloses them.
- M11_08 Given the area of a square, finds its perimeter.
- M11_09 Determines the number of cubes needed to fill a hole in a given shape.
- M13_12 Identifies the appropriate unit measure for an area.

- M01_05 Identifies pairs of congruent triangles.
- M01_09 Solves a problem involving adjacent and vertical angles.
- M03_02 Uses properties of congruent triangles to find the measure of an angle.

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- M03_09 Given two parallel lines cut by a transversal, selects a pair of supplementary angles.
- M03_14 Selects the center of rotation when shown a diagram of a triangle and its image under a quarter turn.
- M06_06 Uses knowledge of a straight angle to find the measure of an angle.
- M06_14 Determines the measure of the missing angle in a right triangle.
- M06_15 Uses properties of angles to draw and label a figure.
- M07_09 Uses the properties of a triangle and regular hexagon to find the measure of an angle.
- M09_11 Identifies a triangle similar to a specific triangle given the lengths of all sides.
- M11_12 Identifies the transformations used to produce a sequence of figure.
- M12_08 Visualizes the unfolded shape of a figure shown on a folded piece of paper and uses property of triangles to identify the shape.

- M01_07 Reads data from a frequency table to solve a problem.
- M03_11 In a word problem, when given the possible number of outcomes and the probability of successful outcomes, solves for the number of successful outcomes.
- M04_09 Given the set of possible outcomes expressed as fractions of all outcomes, recognizes that probability is associated with the size of a fraction.
- M05_07 In a word problem, when given the possible number of outcomes and the probability of successful outcomes,

M12_04 V

- M01_06 Recognizes the hundreds place in a four-digit number.
- M01_11 Translates between a numeric and verbal representation of a four-digit number.
- M03_04 Translates between standard and expanded notation of three-digit whole numbers.
- M04_01 Multiplies a two-digit by a one-digit whole number.
- M08_01 Identifies the difference between two fractions with the same denominator.
- M11_01 Adds a four-digit and three-digit whole number.
- M14_05 Solves a word problem involving addition of three-digit whole numbers.

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(47), Continued

SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003

- M04_08 Draws a line parallel to a given line on a grid.
- M04_09 Identifies and names common geometric shapes in a picture.
- M10_08A Draws a line to divide one rectangle into two triangles.
- M11_11 Identifies a pattern generated by quarter turns clockwise.
- M12_10 Locates a point on an informal coordinate grid and identifies the moves to get there.
- M14_06 Identifies a three-dimensional object given the pictorial representation of its faces.

- M02_06 Locates data in a two-way table.
- M03_01 Solves a comparison problem by associating elements of a bar graph with a verbal description.
- M04_10 Completes a bar graph based on the solution of a word problem.
- M05_11 Identifies the pie chart that matches the information shown in a table.
- M06_10 Completes a two-by-two table to summarize information.
- M07_09 Uses information to identify the number of symbols needed to complete a pictograph when the symbol represents more than one.
- M08_12 Identifies the pie chart that matches a given bar graph.
- M11_12 Completes a bar graph that represents a table of data.

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- M01_07 Rounds a three-digit whole number to the nearest hundred.
- M02_05 Recognizes the figure that illustrates a simple ratio.
- M02_07 Solves word problem involving $1/2$ and $1/4$.
- M03_03 Selects the number sentence that provides the best estimate of which is closest to the actual product of two two-digit numbers.
- M03_07 Solves two-step word problem using doubling and adding.
- M03_12 Understands tens place value and can translate between verbal and numeric representations.
- M04_03 Solves a word problem by finding a fractional part of a collection of objects.
- M05_01 Solves a word problem involving division of a three digit by a one-digit whole number.
- M05_02 Determines the missing digit to give a specified difference in a three-digit subtraction problem.
- M07_02 Solves a word problem involving division of a three-digit by a one-digit whole number.
- M07_07 Solves a multi-step word problem involving addition and multiplication of whole numbers.
- M08_03 Selects two-place decimal closest to a given whole number.



SOURCE: IEA's Trends in International Mathematics and Science Study (TIMSS) 2003



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MATHEMATICS
Grade 4

(2), Continued

- M05_10 Organizes data and completes a tally chart to represent it.
- M13_06 Reads, relates, and interprets values from two sets of data from graph to solve a problem.

(2)

- M08_02 Subtracts a one-place decimal from a two-place decimal presented horizontally.
- M09_06B Selects the appropriate tiles from a restricted set and uses them to represent a given fraction.
- M13_02C Uses knowledge of place value to arrange three given digits to create the largest product of a two-digit and one-digit number.
- M14_03 Selects appropriate information and uses it to solve a multi-step problem involving two proportions.

- M05_04 Writes two-step rule for a linear relationship between pairs of numbers.
- M07_03 Identifies the number that satisfies a number sentence involving division of two terms on each side.
- M07_05 Solves a multi-step problem to find one of the two unknown values.
- M09_04 Uses understanding of equality to evaluate an expression.

- M10_06 Identifies a time in minutes in an interval given in hours and half hours.

- M03_08 Recognizes the equivalent of a three-dimensional figure when it is rotated to a different orientation.

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