Updated Review Content and Added-on Practice Problems

Underlined below is the added review content which supplements the original review package. The added sample questions are also presented in tandem.

Problem Solving Strategies

P1 Look for a Pattern
P2 Examine a Related Problem
P3 Examine a simpler case
P4 Make a Table
P5 Identify a subgoal
P6 Make a Diagram
P7 Use Guess and Check
P8 Work Backward
P9 Write an Equation

Whole Number

W1 compute with whole numbers, order of operations
W2 apply operations on whole numbers to solve problems
W3 find place value of digits in whole numbers to 10-places
W4 find multiples of a number, common multiples and least common multiple
W5 find divisors of a number, common divisors, and greatest common divisor
W6 write a number as an expanded numeral and in exponential format
W7 determine whether a number is odd/even, prime/composite
W8 estimate amounts and answers to computations, round to the nearest ten, hundred, thousand
W9 properties of operations
W10 operation and Properties of Exponents
W11 models of multiplication and division

Fractions

F1 represent a fraction by a diagram, real-world situation, on the number line
F2 find equivalent fractions, simplify fractions (reduce to lowest terms)
F3 compare two fractions, order a set of fractions
F4 express an improper fraction as a mixed numeral and vice versa, represent mixed numerals
F5 compute with fractions, estimate answers for computations with fractions
F6 test if a fraction is a solution to an equation or inequality
F7 apply operations on fractions to solve multi-step problems

Decimals

D1 represent a decimal by a diagram, on a number line, or real-world situation
D2 represent a fraction as a decimal and vice versa
D3 find place value of digits in a decimal, compare decimals, order a set of decimals
D4 compute with decimals, estimate answers for computations with decimals
D5 test if a decimal is a solution to an equation or inequality
D6 apply operations on decimals to solve problems
D7 approximate the square root of a while number by a whole number or decimal with and without a calculator

Ratio and Percent, and Proportions

P1 represent a percent by a diagram, fraction, decimal
P2 compute percentages and apply them to solve problems, compute percentages using a calculator
P3 represent a ratio by a diagram or fraction, solve multi-step ratio problems
P4 similar figures and proportions

Measurement

M1 estimate and measure with a ruler length in metric system and English system units
M2 find the perimeter and area of plane figures, and volume of 3-dimensional figures
M3 solve problems involving perimeter, area, and volume
M4 estimate and measure angles in degrees, identify right, acute, and obtuse angles

Geometry

G1 identify parallel and perpendicular lines, congruent figures, line of symmetry of a figure
G2 identify shapes by their properties, draw shapes given certain properties
G3 identify 3-dimensional shapes and tell their properties
G4 similar triangle, properties of proportions, and indirect measurement
G5 symmetries and transformations

Data Interpretation and Probability

S1 interpret graphs (bar, line, pictograph, circle, double bar), construct graphs given data
S2 find an average and solve problems involving averages
S3 find range, median, mean of a set of data
S4 determine combinations, and represent them by a list or a tree diagram
S5 find the probability of simple events, estimate empirical probability given data

Patterns and Algebra

A1 use variables to describe quantitative situations and diagrams
A2 compute with positive and negative integers
A3 evaluate expressions or formula involving variables
A4 check if a number is a solution to an equation or inequality, solve equations/inequalities
A5 find rule for patterns or IN-OUT functions
A6 use equations to represent real-world situations
A7 graph equations for lines and inequalities in the x-y coordinate plane

Added-on Sample Questions

Problem Solving Strategies

1. Brett build a tower using four different colored milk cartons. The red carton was below the green carton. The blue carton was above the yellow carton which was above the green carton. Which carton is on top?

Which of the following problem-solving strategies would be most appropriate to use to solve this problem?

A. Work backwards.
B. Make comparative lists.
C. Set up an equation.
D. Make a diagram

2. A farmer has both pigs and chickens on his farm. There are 78 feet and 27 heads. How many pigs and how many chickens are there?
Which of the following problem-solving strategies would be most appropriate to use to solve this problem?

A. Work backwards.
B. Make comparative lists.
C. Set up an equation.
D. Make a diagram

Properties of Operations

3. Which of the following statements illustrates associative property of operation?
A. 187+66+13=187+13+66
B. (a + b) .c = ab + bc
C. 101 x 89 = (100+1) x 89
D. 15 + 0 = 15 = 0 + 15

Operation and properties of exponents

4. Find the answer for $2^3 \cdot 4^2 \cdot 8^2$
A. 2^{13} B. 2^{10} C. 4^7 D. 2^{72}

5. Find the answer for $9^5 / 3^{-2}$
A. 3^8 B. 3^{12} C. 3^{-5} D. 3^5

Models of multiplication and division

6. Using an area model for (a+2). (a+b) as shown in below, what is the value for the unknown area?

A. b B. ab C. b^2 D. 2b

	a	**2**
a	**a^2**	**2a**
b	**?**	**2b**

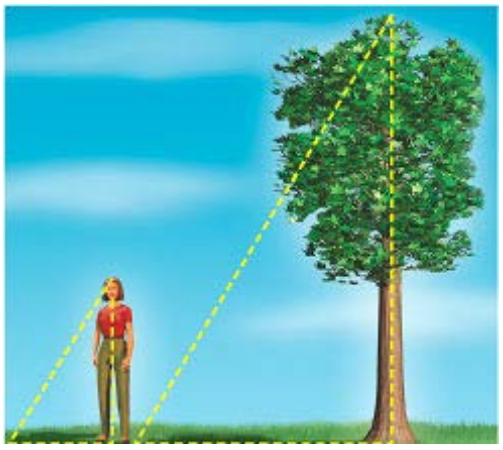
Multi-Step ratio problem

7. There are 600 pupils in a school. The ratio of boys to girls in this school is 3:5. How many girls are in this school?

A. 375 B. 225 C. 300 D. 200

Similar triangle, properties of proportions, and indirect measurement

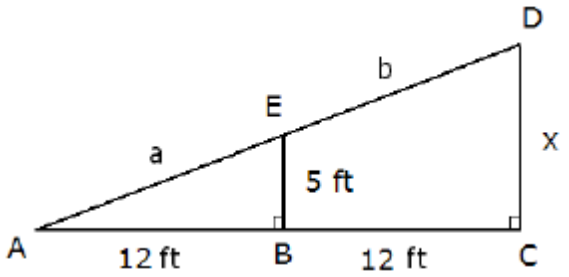
8. When a tree casts a 20-foot shadow, a man 6 feet tall casts a 3-foot shadow. How tall is the tree?



A. 40feet B. 10feet C. 60feet D. 30feet

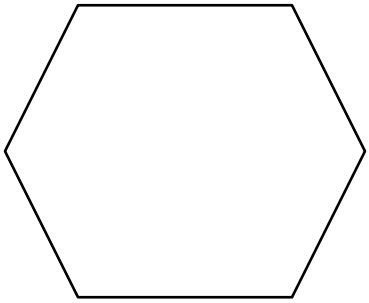
9. Consider the picture below. What is the value of x?

A. 5feet B. 10 feet C. 15feet D. 20 feet



Symmetries and transformations

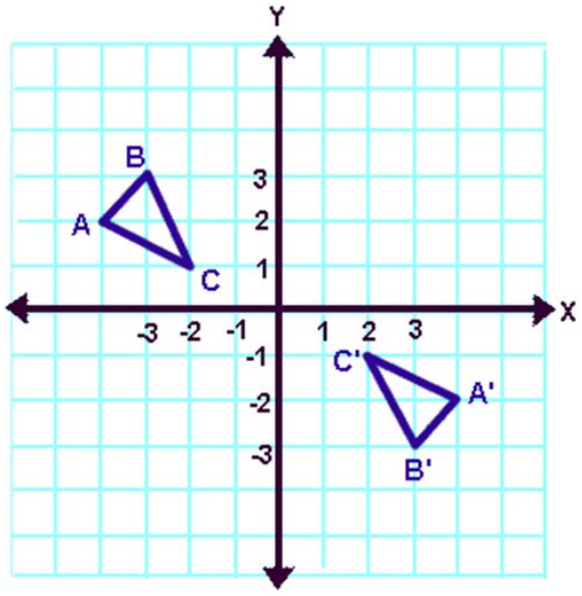
10. How many lines of symmetry does the following hexagon have?



A. 6 B. 3 C. 9 D. 12

11. The graph in below shows an example of a transformation. Which transformation is shown?

A. Translation B. Reflection in origin C. Rotation D. Dilation



12. On a graph paper, please sketch the graph for the following equations:

1) $y = x$; $y = -2x$; What are the characteristics of the graph?

2) $y = x + 1$; $y = 2x - 1$; What are the characteristics of the graph?

3) $x + y = 5$; $2x + y = 10$; What are the characteristics of the graph?

4) $x.y = 12$; What is the characteristic of the graph

1.D 2. C. 3. A 4. A 5. B. 6. ab 7. A 8. A 9. B 10. A 11. B 12. 1) Direct proportion (y = ax); straight line, the line goes through the origin; 2) Linear non-proportional (y = ax + b); straight line, slope intercept with y-axis at (0, 1); 3) Linear non-proportional (y= -ax +b); straight line, slop intercept with x-axis and y-axis with an area of right triangle formed below the straight line; 4) Inverse proportion; the graph on the Cartesian coordinate plane is a hyperbola. Since neither x nor y can equal zero (if k is non-zero), the graph will never cross either axis.