Texas Assessment of Knowledge and Skills - Modified
Answer Key

Grade: 07
Subject: Mathematics
Administration: April 2009

Item Number	Correct Answer	Objective Measured	Student Expectations
01	A	03	7.8 (B)
02	G	01	7.2 (E)
03	B	04	7.9 (A)
04	H	05	7.10 (A)
05	A	06	7.13 (B)
06	G	01	7.2 (B)
07	B	02	7.5 (A)
08	F	04	7.9 (A)
09	B	02	7.3 (A)
10	H	01	7.1 (A)
11	B	03	7.7 (A)
12	H	02	7.3 (B)
13	B	05	7.12 (B)
14	F	01	7.2 (G)
15	A	02	7.5 (B)
16	H	01	7.2 (D)
17	C	03	7.6 (B)
18	G	04	7.9 (C)
19	A	06	7.14 (A)
20	H	05	7.11 (B)
21	A	06	7.13 (C)
22	F	01	7.1 (B)
23	B	03	7.6 (A)
24	F	02	7.4 (B)
25	C	06	7.15 (A)
26	H	05	7.10 (A)
27	B	02	7.3 (B)
28	H	04	7.9 (C)
29	A	06	7.15 (B)
30	H	01	7.2 (F)
31	A	05	7.12 (A)
32	G	03	7.8 (A)
33	A	02	7.4 (A)
34	H	05	7.11 (A)
35	B	02	7.4 (C)
36	G	06	7.13 (A)
37	C	01	7.2 (A)
38	G	03	7.7 (B)

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Grade 7 Mathematics

For a more complete description of the objectives measured, please refer to the Revised TAKS Information Booklet for Grade 7 Mathematics at http://www.tea.state.tx.us/student.assessment/taks/booklets/index.html.

Objective 1: The student will demonstrate an understanding of numbers, operations, and quantitative reasoning.

(7.1) **Number, operation, and quantitative reasoning.** The student represents and uses numbers in a variety of equivalent forms. The student is expected to

(A) compare and order integers and positive rational numbers;

(B) convert between fractions, decimals, whole numbers, and percents mentally, on paper, [or with a calculator]; and

(C) represent squares and square roots using geometric models.

(7.2) **Number, operation, and quantitative reasoning.** The student adds, subtracts, multiplies, or divides to solve problems and justify solutions. The student is expected to

(A) represent multiplication and division situations involving fractions and decimals with models, including [concrete objects,] pictures, words, and numbers;

(B) use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals;

(C) use models, such as [concrete objects,] pictorial models, and number lines, to add, subtract, multiply, and divide integers and connect the actions to algorithms;

(D) use division to find unit rates and ratios in proportional relationships such as speed, density, price, recipes, and student-teacher ratio;

(E) simplify numerical expressions involving order of operations and exponents;

(F) select and use appropriate operations to solve problems and justify the selections; and

(G) determine the reasonableness of a solution to a problem.

Objective 2: The student will demonstrate an understanding of patterns, relationships, and algebraic reasoning.

(7.3) **Patterns, relationships, and algebraic thinking.** The student solves problems involving direct proportional relationships. The student is expected to

(A) estimate and find solutions to application problems involving percent; and

(B) estimate and find solutions to application problems involving proportional relationships such as similarity, scaling, unit costs, and related measurement units.

(7.4) **Patterns, relationships, and algebraic thinking.** The student represents a relationship in numerical, geometric, verbal, and symbolic form. The student is expected to

(A) generate formulas involving unit conversions, perimeter, area, circumference, volume, and scaling;

(B) graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling; and

(C) use words and symbols to describe the relationship between the terms in an arithmetic sequence (with a constant rate of change) and their positions in the sequence.

(7.5) **Patterns, relationships, and algebraic thinking.** The student uses equations to solve problems. The student is expected to

(A) use [concrete and] pictorial models to solve equations and use symbols to record the actions; and

(B) formulate problem situations when given a simple equation and formulate an equation when given a problem situation.

Objective 3: The student will demonstrate an understanding of geometry and spatial reasoning.

(7.6) **Geometry and spatial reasoning.** The student compares and classifies two- and three-dimensional figures using geometric vocabulary and properties. The student is expected to

(A) use angle measurements to classify pairs of angles as complementary or supplementary;

(B) use properties to classify triangles and quadrilaterals;

(C) use properties to classify three-dimensional figures, including pyramids, cones, prisms, and cylinders; and

(D) use critical attributes to define similarity.

(7.7) **Geometry and spatial reasoning.** The student uses coordinate geometry to describe location on a plane. The student is expected to

(A) locate and name points on a coordinate plane using ordered pairs of integers; and

(B) graph reflections across the horizontal or vertical axis and graph translations on a coordinate plane.

(7.8) **Geometry and spatial reasoning.** The student uses geometry to model and describe the physical world. The student is expected to

(A) sketch three-dimensional figures when given the top, side, and front views;

(B) make a net (two-dimensional model) of the surface area of a three-dimensional figure; and

(C) use geometric concepts and properties to solve problems in fields such as art and architecture.

Objective 4: The student will demonstrate an understanding of the concepts and uses of measurement.

(7.9) **Measurement.** The student solves application problems involving estimation and measurement. The student is expected to

(A) estimate measurements and solve application problems involving length (including perimeter and circumference) and area of polygons and other shapes;

(B) connect models for volume of prisms (triangular and rectangular) and cylinders to formulas of prisms (triangular and rectangular) and cylinders; and

(C) estimate measurements and solve application problems involving volume of prisms (rectangular and triangular) and cylinders.

Objective 5: The student will demonstrate an understanding of probability and statistics.

(7.10) **Probability and statistics.** The student recognizes that a physical or mathematical model can be used to describe the experimental and theoretical probability of real-life events. The student is expected to

(A) construct sample spaces for simple or composite experiments.

(7.11) **Probability and statistics.** The student understands that the way a set of data is displayed influences its interpretation. The student is expected to

(A) select and use an appropriate representation for presenting and displaying relationships among collected data, including line plot, line graph, bar graph, [stem and leaf plot,] circle graph, and Venn diagrams, and justify the selection; and

(B) make inferences and convincing arguments based on an analysis of given or collected data.

(7.12) **Probability and statistics.** The student uses measures of central tendency and range to describe a set of data. The student is expected to

(A) describe a set of data using mean, median, mode, and range; and

(B) choose among mean, median, mode, or range to describe a set of data and justify the choice for a particular situation.

Objective 6: The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.

(7.13) **Underlying processes and mathematical tools.** The student applies Grade 7 mathematics to solve problems connected to everyday experiences, investigations in other disciplines, and activities in and outside of school. The student is expected to

(A) identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics;

(B) use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness; and

(C) select or develop an appropriate problem-solving strategy from a variety of different types, including drawing a picture, looking for a pattern, systematic guessing and checking, acting it out, making a table, working a simpler problem, or working backwards to solve a problem.

Grade 7 Mathematics (continued)

(7.14) **Underlying processes and mathematical tools**. The student communicates about Grade 7 mathematics through informal and mathematical language, representations, and models. The student is expected to

(A) communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models.

(7.15) **Underlying processes and mathematical tools.** The student uses logical reasoning to make conjectures and verify conclusions. The student is expected to

(A) make conjectures from patterns or sets of examples and nonexamples; and

(B) validate his/her conclusions using mathematical properties and relationships.