



# Texas Assessment of Knowledge and Skills - Answer Key

**Grade: 07**  
**Subject: Mathematics**  
**Administration: April 2009**

Item Number	Correct Answer	Objective Measured	Student Expectations
01	A	03	7.8 (A)
02	G	01	7.1 (B)
03	B	06	7.15 (B)
04	J	05	7.11 (B)
05	A	04	7.9 (C)
06	G	06	7.13 (B)
07	A	01	7.1 (C)
08	H	02	7.5 (B)
09	B	03	7.8 (B)
10	J	01	7.2 (B)
11	D	05	7.10 (A)
12	H	06	7.13 (A)
13	A	01	7.1 (A)
14	G	02	7.4 (B)
15	D	06	7.15 (A)
16	H	05	7.12 (B)
17	D	02	7.4 (C)
18	G	03	7.7 (B)
19	6.29	01	7.2 (D)
20	J	05	7.11 (A)
21	C	02	7.3 (B)
22	G	04	7.9 (A)
23	C	04	7.9 (B)
24	J	03	7.7 (A)
25	B	02	7.4 (A)
26	H	01	7.2 (E)
27	A	04	7.9 (C)
28	J	02	7.5 (A)
29	A	06	7.14 (A)
30	G	01	7.2 (G)
31	B	06	7.13 (C)
32	J	03	7.6 (D)
33	C	02	7.3 (A)
34	J	06	7.13 (A)
35	A	05	7.10 (A)
36	G	02	7.3 (B)
37	C	03	7.6 (A)
38	G	01	7.2 (C)
39	D	04	7.9 (A)
40	F	05	7.12 (A)
41	B	02	7.4 (C)
42	G	06	7.14 (A)
43	A	01	7.2 (A)
44	H	05	7.11 (B)
45	B	02	7.3 (A)
46	H	01	7.2 (F)
47	A	03	7.6 (B)
48	G	06	7.13 (B)

## 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;

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- (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

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- (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.

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- (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.