



Texas Assessment of Knowledge and Skills - Answer Key

Grade: 07
Subject: Mathematics
Administration: Spring 2003

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

Grade 7 Mathematics

Refer to the *TAKS Information Booklet Mathematics Grades 5-9* for a more complete description of the objectives measured.

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 [concrete] models, pictures, words, and numbers;
 - (B) use addition, subtraction, multiplication, and division to solve problems involving fractions and decimals;
 - (C) use models 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 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 conversions, perimeter, area, circumference, volume, and scaling;

Grade 7 Mathematics (continued)

- (B) graph data to demonstrate relationships in familiar concepts such as conversions, perimeter, area, circumference, volume, and scaling; and
 - (C) describe the relationship between the terms in a sequence 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] models to solve equations and use symbols to record the actions; and
 - (B) formulate a possible problem situation when given a simple equation.

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

- (7.6) **Geometry and spatial reasoning.** The student compares and classifies shapes and solids 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 shapes including triangles, quadrilaterals, pentagons, and circles;
 - (C) use properties to classify solids, 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 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 a solid when given the top, side, and front views;
 - (B) make a net (two-dimensional model) of the surface area of a solid; 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), area, and volume.

Grade 7 Mathematics (continued)

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 probability of real-life events. The student is expected to
- (A) construct sample spaces for compound events (dependent and independent).
- (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 collected data 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.
- (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.