

# **MATHEMATICS**

## **Grade 8**

# **TEKS/TAKS**

## **Multiple Choice Questions**

**Organized by TEKS**

Brenda DeBorde [brenda\\_deborde@msn.com](mailto:brenda_deborde@msn.com)  
Juanita Thompson [JThom3250@sbcglobal.net](mailto:JThom3250@sbcglobal.net)  
*TEKSING TOWARD TAKS ©2006*

# GRADE 8 MULTIPLE-CHOICE QUESTIONS ORGANIZED BY TEKS

## Table of Contents

### TAKS Objective 1

**The student will demonstrate an understanding of numbers, operations and quantitative reasoning.**

TEKS	Student Expectation	Number of Questions
8.1A	Compare and order rational numbers in various forms including integers, percents, and positive and negative fractions and decimals	51
8.1B	Select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships	19
8.1C	Approximate (mentally and with calculators) the value of irrational numbers as they arise from problem situations (such as $\pi$ , $\sqrt{2}$ )	24
8.1D	Express numbers in scientific notation, including negative exponents, in appropriate problem situations	16
8.2A	Select appropriate operations to solve problems involving rational numbers and justify the selections	21
8.2B	Use appropriate operations to solve problems involving rational numbers in problem situations	57
8.2C	Evaluate a solution for reasonableness	17
8.2D	Use multiplication by a constant factor (unit rate) to represent proportional relationships	18

### TAKS Objective 2

**The student will demonstrate an understanding of patterns, relationships and algebraic reasoning.**

TEKS	Student Expectation	Number of Questions
8.3A	Compare and contrast proportional and non-proportional linear relationships	25
8.3B	Estimate and find solutions to application problems involving percents and other proportional relationships such as similarity and rates	29
8.4	Generate a different representation of data given another representation of data (such as a table, graph, equation, or verbal description).	36
8.5A	Predict, find, and justify solutions to application problems using appropriate tables, graphs, and algebraic equations	31
8.5B	Find and evaluate an algebraic expression to determine any term in an arithmetic sequence (with a constant rate of change)	18

### TAKS Objective 3

**The student will demonstrate an understanding of geometry and spatial reasoning.**

TEKS	Student Expectation	Number of Questions
8.6A	Generate similar figures using dilations including enlargements and reductions	17
8.6B	Graph dilations, reflections, and translations on a coordinate plane	30
8.7A	Draw three-dimensional figures from different perspectives	18
8.7B	Use geometric concepts and properties to solve problems in fields such as art and architecture	20
8.7C	Use pictures or models to demonstrate the Pythagorean Theorem	11
8.7D	Locate and name points on a coordinate plane using ordered pairs of rational numbers	23

# GRADE 8 MULTIPLE-CHOICE QUESTIONS ORGANIZED BY TEKS

## Table of Contents

### TAKS Objective 4

**The student will demonstrate an understanding of the concepts and uses of measurement.**

TEKS	Student Expectation	Number of Questions
8.8A	Find lateral and total surface area of prisms, pyramids, and cylinders using concrete models and nets (two-dimensional models)	15
8.8C	Estimate measurements and use formulas to solve application problems involving lateral and total surface area and volume	25
8.9A	Use the Pythagorean Theorem to solve real-life problems	16
8.9B	Use proportional relationships in similar two-dimensional figures or similar three-dimensional figures to find missing measurements	13
8.10A	Describe the resulting effects on perimeter and area when dimensions of a shape are changed proportionally	26
8.10B	Describe the resulting effect on volume when dimensions of a solid are changed proportionally	16

### TAKS Objective 5

**The student will demonstrate an understanding of probability and statistics.**

TEKS	Student Expectation	Number of Questions
8.11A	Find the probabilities of dependent and independent events	23
8.11B	Use theoretical probabilities and experimental results to make predictions and decisions	20
8.12A	Select the appropriate measure of central tendency or range to describe a set of data and justify the choice for a particular situation	15
8.12B	Draw conclusions and make predictions by analyzing trends in scatterplots	13
8.12C	Select and use an appropriate representation for presenting and displaying relationships among collected data, including line plots, line graphs, stem and leaf plots, circle graphs, bar graphs, box and whisker plots, histograms, and Venn diagrams, with and without the use of technology	35

# GRADE 8 MULTIPLE-CHOICE QUESTIONS ORGANIZED BY TEKS

## Table of Contents

### TAKS Objective 6

The student will demonstrate an understanding of the mathematical processes used in problem solving.

TEKS	Student Expectation	Number of Questions
8.13A	Evaluate methods of sampling to determine validity of an inference made from a set of data	14
8.13B	Recognize misuses of graphical or numerical information and evaluate predictions and conclusions based on data analysis	16
8.14A	Identify and apply mathematics to everyday experiences, to activities in and outside of school, with other disciplines, and with other mathematical topics	16
8.14B	Use a problem-solving model that incorporates understanding the problem, making a plan, carrying out the plan, and evaluating the solution for reasonableness	37
8.14C	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	23
8.15A	communicate mathematical ideas using language, efficient tools, appropriate units, and graphical, numerical, physical, or algebraic mathematical models	15
8.16A	make conjectures from patterns or sets of examples and nonexamples	26
8.16B	validate his/her conclusions using mathematical properties and relationships	18

**TOTAL GRADE 8 MULTIPLE CHOICE QUESTIONS = 863**

## GRADE 8 MATHEMATICS

**(8.14) Underlying processes and mathematical tools.** The student applies Grade 8 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.

Mr. Lopez is building a sunroom that is 13 feet wide and 14 feet long. He wants to pour a cement floor for the sunroom. What other information does he need to determine the amount of cement to order?

- A The cost of the cement per square yard
- B The depth of the sunroom floor
- C The area of the sunroom floor
- D The perimeter of the sunroom floor

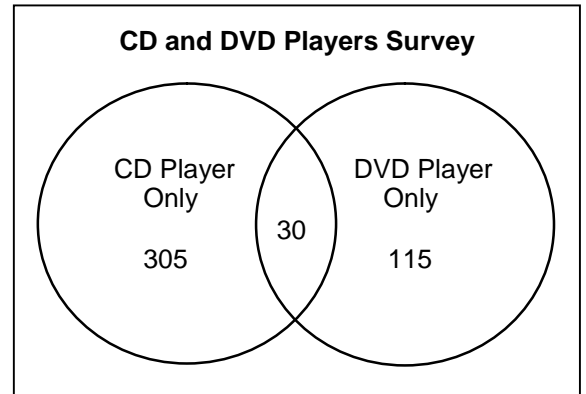
A troop leader plans to buy 2 hotdogs per person for a campout for his troop. If 15 people have signed up for the campout, what other information is needed to determine the number of packages of hotdogs he needs to buy for the campout?

- F The number adults attending the campout
- G The number of hotdogs in a package
- H The cost of a package of hotdogs
- J The cost of the buns for the hotdogs

Mr. Jones bought a new radio for his son's birthday gift. He found one on sale for a 20% discount. When he was ready to pay for the radio, the clerk reminded him that radios are taxable items. If the radio's sale price was \$45, what other information does Mr. Jones need to calculate the total cost of the radio?

- A The tax rate for the item he purchased
- B The original price of the radio
- C The amount the radio was discounted for the sale
- D The percent of the regular price he paid after the sale discount was given

The Venn diagram shows how many of the 600 students at Reagan Middle School have a CD player only, a DVD player only, or both a CD and a DVD player.



Use the information in the diagram to find the probability that 1 student chosen at random has neither a CD nor a DVD player.

- F  $\frac{3}{4}$
- G  $\frac{3}{5}$
- H  $\frac{1}{4}$
- J  $\frac{1}{20}$

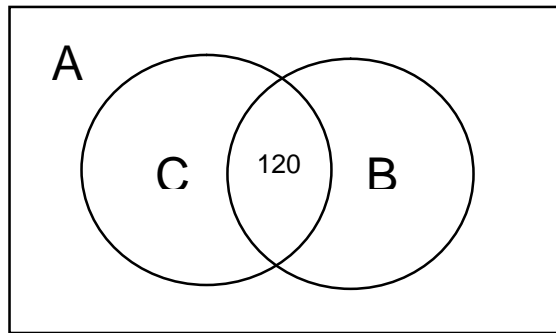
Maria and three of her friends are having lunch today. The total cost of their meal is \$42 and they want to leave a tip of 20%. They have \$49 altogether. Is \$49 enough to cover the cost of the meal and the tip?

- A Yes, they will have \$1.40 left over.
- B Yes, they will have \$7 left over.
- C No, they will need \$1.40 more.
- D Yes, they have the exact amount they need.

## GRADE 8 MATHEMATICS

**(8.14) Underlying processes and mathematical tools.** The student applies Grade 8 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.

Rectangle A represents 400 students in the eighth grade at Uptown Junior High School. Circle C represents the 250 students who are in choir. Circle B represents the 200 students who are in band. A total of 120 students are in both band and choir.



Which table best represents the number of students who are in band only, in choir only, or in neither band nor choir?

**F**

Event	Number of Students
Band Only	80
Choir Only	130
Neither	80

**H**

Event	Number of Students
Band Only	80
Choir Only	120
Neither	70

**G**

Event	Number of Students
Band Only	80
Choir Only	130
Neither	70

**J**

Event	Number of Students
Band Only	80
Choir Only	120
Neither	80

## GRADE 8 MATHEMATICS

**(8.14) Underlying processes and mathematical tools.** The student applies Grade 8 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.

When you purchase many items in stores the clerk will scan the UPC bar code Version A. This bar code contains information about the product, identifies the manufacturer and classifies the product. The last number on the bar code is called the check number and it allows the computer to check to make sure the bar code was scanned correctly. The check number is calculated mathematically by a 5-step procedure described below. The bar code shown below is used to illustrate the steps.

Step 1: Add the digits in the odd numbered positions.  $0 + 5 + 6 + 0 + 0 + 0 = 11$

Step 2: Multiply that number by 3.  $11 \times 3 = 33$

Step 3: Add the digits in the first 5 even-numbered positions.  $4 + 5 + 6 + 6 + 2 = 23$

Step 4: Add the results of step 2 and step 3.  $33 + 23 = 56$

Step 5: Determine the smallest number that when added to the result obtained through step 4 gives a number that is a multiple of 10.  $56 + ? = 60$   $? = 4$

This number should be the check number or the last digit on the bar code.



Using the bar code below, determine which statement is true about the missing check number.



- A The missing check number should be a 9.
- B The missing check number should be a 7.
- C The missing check number should be a 5.
- D The missing check number should be a 4.

## GRADE 8 MATHEMATICS

**(8.14) Underlying processes and mathematical tools.** The student applies Grade 8 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.

A block of ice is melting at an average of  $\frac{1}{3}$  its weight each hour. After three hours, the block weighed 8 pounds. How much did it weigh before it began melting.

- F 27 pounds
- G 9 pounds
- H 18 pounds
- J 12 pounds

A strain of bacteria is growing at an average of twice its number each hour. After 3 hours the bacteria count was 960,000. What was the original bacteria count?

- A 480,000
- B 240,000
- C 120,000
- D 60,000

Andy agreed to work for a local grocer delivering groceries. He agreed to be paid \$0.05 the first day with his salary to double each day after that. How much did he earn the 5<sup>th</sup> and 6<sup>th</sup> days?

- F \$0.80 and \$1.60
- G \$0.40 and \$0.80
- H \$1.60 and \$3.20
- J \$3.20 and \$6.40

The Thompson family reunion is going to be held at the Red River Park in July. The planning committee expects 250 family members to attend. The first night they are planning on serving hot dogs. If hot dog buns cost \$1.39 for a package of eight, what other information is needed to find the cost of the hot dog buns ?

- A How many people like hot dogs
- B The cost of the weiners for the hot dogs
- C The number of buns they are buying per person
- D The number of hot dog buns in a package

The Gammill family reunion is going to be held at the Ruidoso in August. The planning committee expects 100 family members to attend. The first night they are planning on serving hamburgers. They plan to buy enough hamburger meat to have 2 hamburgers per person. If hamburger buns cost \$1.19 per package, what other information is needed to find the cost of the hamburger buns ?

- F How many people like hamburgers
- G How many people attending the reunion are children
- H The number of buns in a package
- J The cost of the mustard and the ketchup

## GRADE 8 MATHEMATICS

**(8.14) Underlying processes and mathematical tools.** The student applies Grade 8 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.

Leroy and three of his friends, Buddy, Jimmy, and Steve, compared their golf scores. Leroy had a higher score than Buddy. Jimmy had a higher score than Steve but lower than Leroy. Buddy had a higher score than Steve. What information is needed to determine the order of the scores from highest to lowest?

- A Is Steve's score higher or lower than Jimmy's score?
- B Is Jimmy's score higher or lower than Buddy's score?
- C Is Steve's score the lowest score?
- D Is Leroy's score the highest score?

Gloria and two of her friends are having lunch today. The total cost of their meal is \$25. They want to leave a tip of 20%. They have \$32 altogether. Is \$32 enough to cover the cost of the meal and the tip?

- F Yes, they will have \$2 left over.
- G Yes, they will have \$7 left over.
- H No, they will need \$2 more.
- J Yes, they have the exact amount.

Mr. Jones counts the number of fat grams he eats each meal. The following chart shows the number of fat grams in the food items he ate for breakfast today.

Food Item	Amount of serving	Number of Fat Grams
Granola Cereal	1 oz.	1
Bagel	1	2
Cream Cheese	1 oz.	10
Scrambled Egg	1	7
2% Milk	1 cup	5
Orange Juice	1 cup	0

If Mr. Jones' breakfast consists of 2 ounces of cereal with 1 cup of milk, 1 scrambled egg, 2 bagels with .5 ounce of cream cheese, and 1 cup of orange juice, which of the following best represents the number of fat grams he consumed at breakfast?

- A Fat grams =  $1 + 5 + 1 + 10 + 7$
- B Fat grams =  $2 + 5 + 1 + 10 + 7$
- C Fat grams =  $2 + 5 + 5 + 10 + 7$
- D Fat grams =  $2 + 5 + 7 + 4 + 5$

A dosage of an antibiotic is decreasing at an average of one-half its amount each hour. If you started with a 500 mg capsule, how much antibiotic should be in your body after 4 hours?

- F 250 mg
- G 125 mg
- H 62.5 mg
- J 31.25 mg