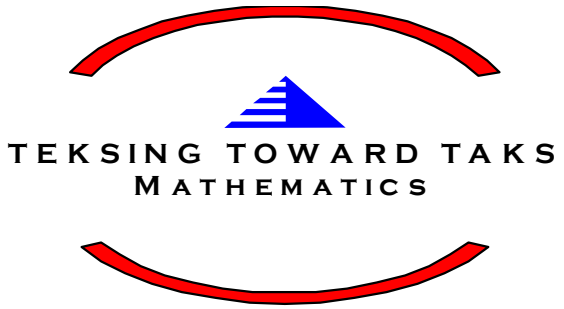


MATHEMATICS
Grade 9

TEKS/TAKS
Multiple Choice Questions

Organized by TEKS

Brenda DeBorde brenda_deborde@msn.com
Juanita Thompson JThom3250@sbcglobal.net

Mathematics Grade 9
TAKS MULTIPLE CHOICE QUESTIONS CORRELATED BY TEKS

TAKS Objective 1
The student will describe functional relationships in a variety of ways

TEKS	Student Expectation Short Description	Number of Questions
A.1A	Determine independent and dependent quantities in relationships	13
A.1B	Use data sets to determine functional relationships	13
A.1C	Describe functional relationships using equations and inequalities	17
A.1D	Represent relationships among quantities using models, tables, graphs, diagrams, verbal descriptions, equations and inequalities	43
A.1E	Interpret and make inferences from functional relationships	15

TAKS Objective 2
The student will demonstrate an understanding of the properties and attributes of functions

TEKS	Student Expectation Short Description	Number of Questions
A.2A	Identifies the general forms of the linear and quadratic parent functions	17
A.2B	Identifies mathematical domains and ranges	13
A.2C	Interprets situations in terms of graphs	9
A.2D	Interprets scatterplots and models and predicts and makes decisions	11
A.3A	Uses symbols to represent unknowns	11
A.3B	Looks for patterns and represents generalizations algebraically	15
A.4A	Finds function values, simplifies polynomial, solves equations and factors	26
A.4B	Uses commutative, associative and distributive properties	12
A.4C	Connect equation notation to function notation	11

TAKS Objective 3
The student will demonstrate an understanding of linear functions.

TEKS	Student Expectation Short Description	Number of Questions
A.5A	Determines if situations can be represented by linear function	8
A.5C	Translates among and uses tabular, graphical or verbal descriptions	21
A.6A	Develops concept of slope and determines slope from graphs, tables and algebraic representation	19
A.6B	Interprets the meaning of slope and intercepts using data, symbolic representation and graphs	28
A.6C	Investigates the effects of changes in *m* and *b* on the graph of $y = mx + b$	10
A.6D	Graphs and writes equations of lines given two points, a point and a slope, or the slope and the *y*-intercept	19
A.6E	Determines intercepts from graphs, tables, or algebraic representation	25
A.6F	Interprets and predicts the effects of changing slope and *y*-intercept	13
A.6G	Relates direct variation and solves problems involving proportional change	21

Mathematics Grade 9
TAKS MULTIPLE CHOICE QUESTIONS CORRELATED BY TEKS

TAKS Objective 4
The student will formulate and use linear equations and inequalities.

TEKS	Student Expectation Short Description	Number of Questions
A.7A	Analyzes situations involving linear functions and formulates linear equations and inequalities	21
A.7B	Investigates methods for solving linear functions	17
A.7C	Determines the reasonableness of solutions	12
A.8A	Formulates systems of linear equations to solve problems	14

TAKS Objective 5
The student will demonstrate an understanding of quadratic and other non-linear functions.

TEKS	Student Expectation Short Description	Number of Questions
A.9C	Investigates the effects of changes of *c* on the graph of $y = ax^2 + c$	20
A.11A	Uses the laws of exponents	27

TAKS Objective 6
The student will demonstrate an understanding of geometric relationships and spatial reasoning

TEKS	Student Expectation Short Description	Number of Questions
8.6A	Generates similar shapes using dilations including enlargements and reductions	20
8.6B	Graphs dilations, reflections and translations on a coordinate plane	37
8.7D	Locates and names points on a coordinate plane	22

TAKS Objective 7
The student will demonstrate an understanding of two- and three-dimensional representations of geometric relationships and shapes

TEKS	Student Expectation Short Description	Number of Questions
8.7A	Draws solids form different perspectives	17
8.7B	Uses geometric concepts and properties to solve problems	23
8.7C	Uses pictures or models to demonstrate Pythagorean Theorem	14

Mathematics Grade 9
TAKS MULTIPLE CHOICE QUESTIONS CORRELATED BY TEKS

TAKS Objective 8
The student will demonstrate an understanding of the concepts and uses of measurement and similarity.

TEKS	Student Expectation Short Description	Number of Questions
8.8A	Finds surface area using models and nets for prisms and cylinders	22
8.8B	Connects models to formulas for volume of prisms, cylinders, pyramids, spheres and cones	32
8.8C	Estimates and uses formulas to find lateral and total surface area and volume	25
8.9A	Uses Pythagorean Theorem to solve problems	12
8.9B	Finds missing measurements in similar two-dimensional and three-dimensional figures	13
8.10A	Describes the resulting effects on perimeter and area when dimensions are changed proportionally	32
8.10B	Describes the resulting effects volume when dimensions are changed proportionally	14

TAKS Objective 9
The student will demonstrate an understanding of percents, proportional relationships, probability and statistics in application problems.

TEKS	Student Expectation Short Description	Number of Questions
8.1B	Select and use appropriate forms of rational numbers to solve real-life problems including those involving proportional relationships	17
8.3B	Estimates and finds solutions to problems involving percent and proportional relationships	26
8.11A	Finds probabilities of independent and dependent events	24
8.11B	Uses probabilities to make predictions and decisions	20
8.12A	Selects appropriate measure of central tendency or range	12
8.12C	Select and use appropriate representation including line plots, line graphs, stem and leaf plots, , circle graphs, bar graphs, box and whisker plots, histograms and Venn diagrams	32
8.13B	Recognizes misuses and evaluates predictions	19

TAKS Objective 10
The student will demonstrate an understanding of the mathematical processes and tools used in problem solving.

TEKS	Student Expectation Short Description	Number of Questions
8.14A	Identifies and applies mathematics in everyday experiences	18
8.14B	Uses a problem solving model	20
8.14C	Selects or develops appropriate problem-solving strategies	22
8.15A	Communicates mathematical ideas	13
8.16A	Makes conjectures using patterns or examples and non-examples	30
8.16B	Validates conclusions using mathematical properties	17

TOTAL GRADE 9 QUESTIONS = 1054

The side of a square is *n* centimeters long. The area of the square is 22 square centimeters. Which equation can be used to find the length of the side of the square?

A $4n = 22$

B $n^2 + 22 = 0$

C $n^2 = 22$

D $n^2 + 4n = 22$

The owner of a movie rental store recorded the following information from 4 days last week.

Number of Movies Rented, *c*	20	22	27	30
Amount of Sales, s	$150	$162	$192	$210

According to information in the table, which equation describes the relationship between the number of movies rented and the amount of sales?

A $s = 5c + 50$

B $s = 6c + 20$

C $s = 6c + 30$

D $c = \frac{s + 30}{6}$

Each month, a local printing company store pays $1.35 per square foot to lease 8,000 square feet of space in a building. The store must also pay 1% of the total sales to cover security of the building. Which equation could be used to find *c*, the total cost of the lease for a month with a total amount of sales of *d* dollars?

A $c = (1.35 + .01)(8,000)d$

B $c = (1.35 \times 8,000) + 0.1d$

C $c = (1.35 \times 8,000) + 0.01d$

D $c = (1.35)(.01)(8,000)d$

Brian measured his tomato plant when he bought it. It was 12 centimeters tall. It grew 1.2 centimeters every two weeks. Which equation could be used to find the height of Brian's plant after *w* weeks?

A $h = 12 + 1.2w$

B $h = 12 + 1.2(2w)$

C $h = 12 + \frac{1.2w}{2}$

D $h = \frac{12 + 1.2w}{2}$

Justin has a lawn maintenance business. He charges $0.35 per square foot to fertilize but gives a $15 discount to customers who provide their own fertilizer. Which equation could be used to find *t*, the total cost to a customer who has *f* square feet and who provides the fertilizer?

A $t = 0.35f + 15$

B $t = 0.35(f + 15)$

C $t = 0.35f - 15$

D $t = 0.35(f - 15)$

Carol is an experienced cake decorator. She charges $15 per hour plus the cost of ingredients to bake and decorate a cake. Carol purchased the ingredients for a cake for $13. Which equation can be used to find *C*, the total cost of the cake before tax, if Carol spends h hours baking and decorating the cake?

A $C = (13+15)h$

B $C = 13+15+h$

C $C = 13+15h$

D $C = \dfrac{(13+15)}{h}$

Janet decided to invest money she received as an inheritance. She invested $10000 of the money at an annual rate of 5% and the rest of the money, *x*, at an annual rate of 5.25%. Which equation describes *y*, the total amount of interest earned from both investments during the first year?

A $y = 0.05(10000) + 0.0525x$

B $y = 4(10000) + 5.25x$

C $y = (10000 + x)(0.05 + 0.0525)$

D $y = (10000 + x)(5 + 5.25)$

The temperature in degrees Fahrenheit, *F*, is 32 more than $\frac{9}{5}$ of the temperature in degrees Celsius, *C*. Which equation best represents this relationship?

A $F = \dfrac{9}{5}(C + 32)$

B $F = \dfrac{9}{5} \times 32 + C$

C $F = \dfrac{9}{5} + C + 32$

D $F = \dfrac{9}{5}C + 32$

In traveling to see her grandmother, Joyce drove 60 miles per hour for 5 hours and 6 hours at *x* miles per hour. Which equation describes *r*, the average rate she traveled for the entire trip?

A $r = 5 \times 60 + x \times 6$

B $r = \dfrac{5 \times 60 + x \times 6}{6}$

C $r = \dfrac{5 \times 60 + x \times 6}{5}$

D $r = \dfrac{5 \times 60 + x \times 6}{11}$

Missy works at Turner's Department Store after school and on the weekends. She gets paid $7 an hour plus a commission of 4% of her total sales. Which equation describes *e*, Missy's earnings for last week if she worked *x* hours and had $550 in sales.

A $e = 7x + 4(550)$

B $e = 7(x + 0.04(550))$

C $e = 7x + 0.04(550)$

D $e = 0.04(7x + 550)$

In traveling to see his grandmother, Steve drove 65 miles per hour for 8 hours and 3 hours at 60 miles per hour. Which equation describes *r*, the average rate he traveled for the entire trip?

A $r = 8 \times 65 + 60 \times 3$

B $r = \dfrac{8 \times 65 + 60 \times 3}{8 \times 3}$

C $r = \dfrac{8 \times 65 + 3 \times 60}{11}$

D $r = \dfrac{8 \times 65 + 3 \times 60}{8}$

Mr. Sterling has a budget of $3000 to purchase microscopes and accessories for the science department in his school. Each new microscope costs $275, and each slide kit costs $30. If Mr. Sterling buys 9 new microscopes, which inequality can be used to find *s*, the maximum number of slide kits he can buy?

A $9(275+30)s \le 3000$

B $275s \le 3000$

C $9(275s)+60s \le 3000$

D $9(275)+30s \le 3000$

Ms. Long has started saving for a new television. She saved $95 last month. She plans to add $60 each month until she has saved at least $600. Which inequality can be used to find *m*, the minimum number of months it will take Ms. Long to save for her television?

A $60m-95 \ge 600$

B $95+60m \ge 600$

C $60m-75 < 600$

D $95m+60 \ge 600$

David buys charcoal in 25-pound bags. He uses 1.75 pounds of charcoal each time he cooks on the grill. Which inequality could be used to determine *g*, the maximum number of times David can cook on the grill with one bag of charcoal?

A $1.75g \le 25$

B $1.75-g \ge 25$

C $25g \le 1.75$

D $1.75+g \le 25$

Charlie and his mother bought a large basket of peaches at a farmers' market. They put 10 of the peaches aside for eating and planned to use the rest to make peach jam. Their recipe called for 8 peaches per pint jar of jam. Which inequality could be used to find *j*, the maximum number of pint jars of jam they could make if the basket contained 75 peaches?

A $8j-10 \le 75$

B $8(j+10) \le 75$

C $8j+10 \le 75$

D $8j \le 75$

Kacey buys dog food in 25-pound bags. She uses at least 1.25 pounds of dog food per day to feed her pet. Which inequality could be used to determine *d*, the maximum number of days Kacey can feed her pet with one bag of dog food?

A $1.25d \le 25$

B $1.25+d \ge 25$

C $1.25d \ge 25$

D $25d \le 1.25$

The area of a triangle must be at least 60 square units. If the height of the triangle is 10 units, which inequality could be used to find the possible values of the base, *b*, of the triangle?

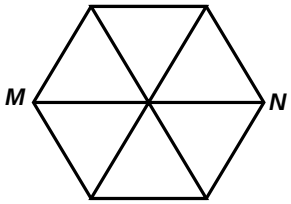
A $10b \le 60$

B $10b \ge 60$

C $10b \ge 30$

D $10b \ge 120$

MacGregor Furniture Company is designing a new game table that will be hexagonal shaped. They will create the tabletop by joining 6 equilateral triangles as shown below.



If the distance from point *M* to point *N* is 4 feet 6 inches, what is the perimeter of the game table?

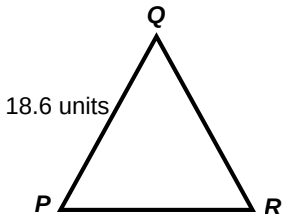
A 7 feet 6 inches

B 13 feet 6 inches

C 27 feet

D 45 feet

ΔPQR is an isosceles triangle with $\angle P$ congruent to $\angle R$. The perimeter of the triangle is 63 units.



What is the length of side *PR*?

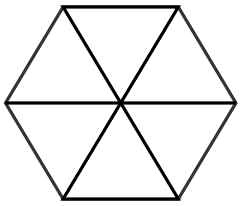
A 14.8 units

B 25.8 units

C 33.4 units

D 44.4 units

A storage box for buttons is designed in the shape of a hexagon using 6 equilateral triangles as shown below. If the perimeter of the box is 57 centimeters, what is the perimeter of one of the triangular storage sections?



A 9.5 cm

B 19 cm

C 28.5 cm

D 114 cm

The school district swimming pool is 2.5 times as long as it is wide. There are 6 swimming lanes running the length of the pool. Each lane is 6.5 feet wide. What is the length of the pool?

A 32.5 ft

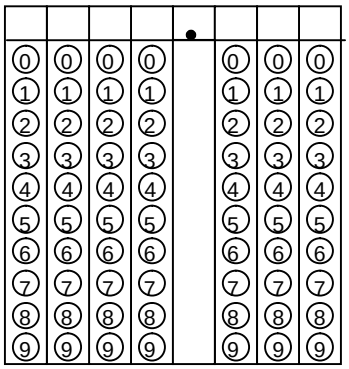
B 35.5 ft

C 107.5 ft

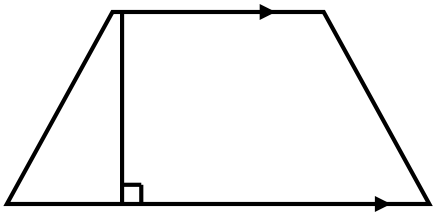
D 97.5 ft

An interior designer is creating a sketch for two mirrors to go into the bathrooms of a new house. The larger mirror will be 4 feet wide and 5.5 feet long. The smaller will be the same width but 18 inches shorter. What will be the total perimeter in inches of both mirrors?

Record your answer on the grid below. Be sure to use the correct place value.



Garden View Center sells weed killer for $3.75 a pound. It takes 1 pound of weed killer for every 200 square feet. A lawn is shaped like a trapezoid with bases of 50 and 30 feet, and the perpendicular distance between the bases is 20 feet.



How much will it cost to weed this lawn?

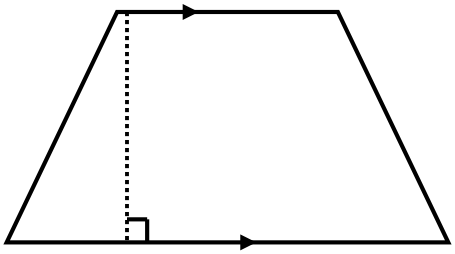
A $15.00

B $30.00

C $45.00

D Not Here

Determine the area to the nearest square foot of the trapezoidal garden shown below if the sketch is a drawing in which 1 centimeter represents 4 feet. Use your formula chart rulers to measure the trapezoid's dimensions.



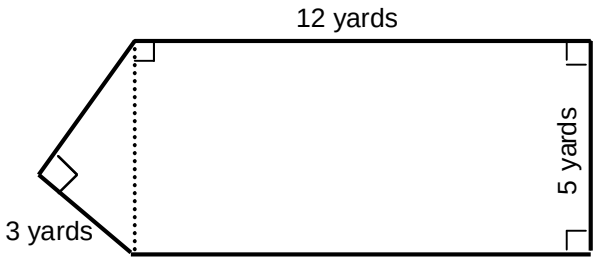
A 14 sq. ft

B 27 sq. ft

C 216 sq. ft

D 332 sq. ft

Maria has a pentagonal garden with the dimensions shown in the diagram.



What is the perimeter of Maria's garden?

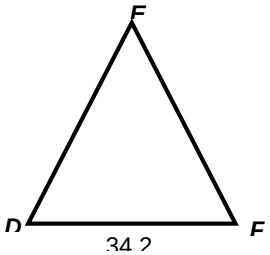
A 20 yd

B 34 yd

C 36 yd

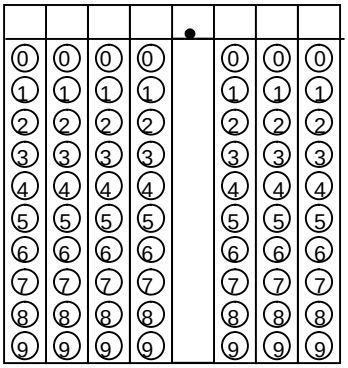
D Not Here

ΔDEF is an isosceles triangle with $\angle D$ congruent to $\angle F$. The perimeter of the triangle is 70 units.

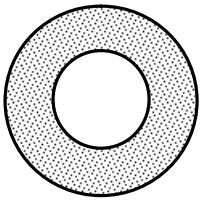


What is the length of side *DE*?

Record your answer on the grid below. Be sure to use the correct place value.



Mary has a doughnut shaped wooden picture frame in her office. The diameter of the larger circle is 30 inches and the diameter of the smaller circle is 10 inches. Which of the following is approximately the area of the wooden frame?



A 628 square inches

B 314 square inches

C 200 square inches

D 100 square inches

Mrs. Green is weaving a circular rug. The diameter of the rug is 14 feet. The yarn she is using comes in bundles. She can weave 7 square feet with 1 bundle of yarn. About how many bundles of yarn does Mrs. Green need to weave her rug?

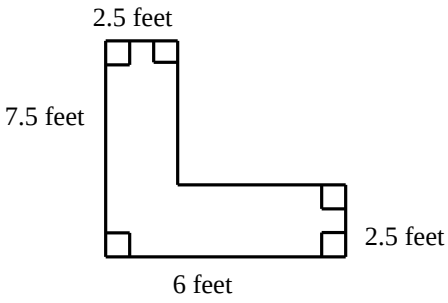
A 6

B 12

C 22

D 28

The Lowman family had an L-shaped bar built in their kitchen.



They want to put trim along the edges. How much trim do they need?

A 22 feet

B 24 feet

C 27 feet

D Not Here

An architect drew a blueprint of a rectangular room for the Smith family. He used a scale of 1 centimeter to represent 5 feet. His drawing was 2.5 centimeters by 3.4 centimeters. Which of the following are the dimensions of the room?

A 12 feet 6 inches by 15 feet

B 11 feet 6 inches by 14 feet

C 12 feet 6 inches by 17 feet

D 12 feet 5 inches by 17 feet

Square tiles that are 18 inches on each side will be used to cover a 16.5-by 21-foot room. If no tile is cut, how many tiles are needed to cover the floor?

A 347

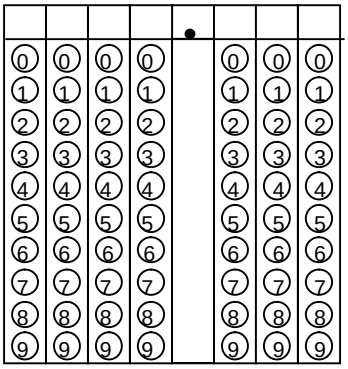
B 194

C 154

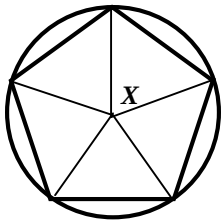
D 144

A patio is shaped like a rectangle. It has a base of 21 feet and a height of 15 feet. It will cost $1.25 a square foot to put an outdoor carpet on the patio. How much will it cost to carpet the patio?

Record your answer in dollars and cents and fill the bubbles. Be sure to use the correct place value.

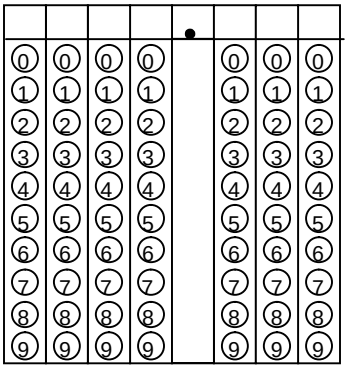


A regular pentagon is inscribed in a circle as shown below.

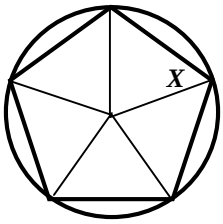


What is the measure of angle *X* in degrees?

Record your answer and fill the bubbles. Be sure to use the correct place value.



A regular pentagon is inscribed in a circle as shown below.



What is the measure of angle *X* in degrees?

A 108

B 72

C 54

D Not Here

A photographer took a picture of a tree and a barn. The picture is $\frac{1}{24}$ the size of the actual building and tree. The highest point on the barn is 18 feet 6 inches and the tree is 12 feet tall. How tall in inches is the tree in the picture?

A 5 in.

B 7 in.

C 6 in.

D 2 in.

The blueprint dimensions for a newly constructed driveway are proportional to the actual driveway's dimensions. On the blue print the driveway measures 12 centimeters wide by 50 centimeters long. If the driveway is actually 15 feet wide, what is the actual length of the driveway?

A 50 feet

B 45 feet

C 62.5 feet

D 75 feet

Mrs. Martz had a carpenter build her a wall unit with a triangular base. The edges of the base of the unit measure 6 feet, 6.5 feet and 5 feet. She instructed him to put an electrical outlet in the corner of the largest angle of the base. Which of the following best describes where he should place the outlet?

A In the middle of the base

B In the corner opposite the side that measures 5 feet

C In the corner opposite the side that measures 6 feet

D In the corner opposite the side that measures 6.5 feet

Mrs. Garcia wants to carpet her rectangular living room. The living room is 22 feet by 17 feet. The carpet and pad she has chosen costs $2.75 a square foot and the installer charges $0.15 a square foot to install the carpet. How much will she pay to buy and install the carpet and pad?

A $1028.50

B $56.10

C $1084.60

D $430.10

Mr. Johnson wants to paint his rectangular living room. He knows the dimensions of his room and the number of square feet a gallon of paint will cover. Which formula does he need to use to find the number of gallons of paint he will need to buy?

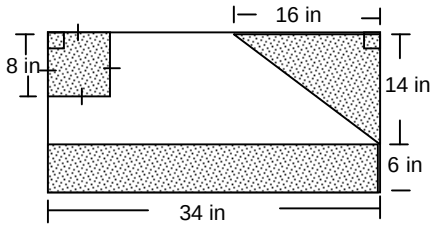
A $A = s^2$

B $A = \frac{bh}{2}$

C $A = lw$

D $V = Bh$

What is the area of the unshaded part of the rectangle below?



A $680\,\text{in}^2$

B $476\,\text{in}^2$

C $300\,\text{in}^2$

D $364\,\text{in}^2$