

Tennessee Comprehensive Assessment Program

TCAP

Math
New or Revised
Standards
Test Practice Items





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Metadata- Math Items

Page Number	Grade	Item Type	Key	TN Standards
1	3	MC	B	3.NBT.A.4
2	3	MC	D	3.MD.A.1b
3	7	MC	C	7.SP.C.6b
4	7	MC	AB	7.SP.C.6c
5	8	MC	C	8.EE.C.9
6	8	FIB	56	8.G.A.1d
7	8	MC	B	8.SP.B.4a
8	8	MC	D	8.SP.B.4b
9	Alg 1	MS	ABE	A1.N.Q.A.1a
10	Alg 1	MS	CE	A1.N.Q.A.1b
11	Alg 1	MC	B	A1.A.REI.B.2a
12	Alg 1	FIB	6	A1.A.REI.B.2b
13	Alg 1	MC	D	A1.A.REI.B.3b
14	Alg 1	MC	B	A1.F.IF.A.3
15	Alg 1	MC	A	A1.F.IF.C.9a
16	Alg 1	MC	C	A1.F.IF.C.9b
17	Alg 1	MC	B	A1.S.ID.A.1
18	Geo	MC	A	G.N.Q.A.1a
19	Geo	MC	B	G.N.Q.A.1b
20	Geo	MC	B	G.N.Q.A.1c
21	Geo	MC	A	G.CO.D.12
22	Geo	FIB	15	G.GPE.A.3
23	Geo	MC	C	G.S.CP.A.1a
24	Geo	MC	A	G.S.CP.A.1b
25	Geo	MC	C	G.S.CP.B.2
26	Geo	MC	B	G.S.CP.B.3a
27	Geo	MC	B	G.S.CP.B.3b
28	Geo	MC	C	G.S.CP.C.4
29	Alg 2	MC	A	A2.N.Q.A.1a
30	Alg 2	MC	B	A2.N.Q.A.1b
31	Alg 2	MC	B	A2.N.Q.A.1d
32	Alg 2	MC	B	A2.N.M.A.1
33	Alg 2	MC	D	A2.N.M.A.2a
34	Alg 2	MC	A	A2.N.M.A.2b
35	Alg 2	MC	A	A2.N.M.A.2c

Page Number	Grade	Item Type	Key	TN Standards
36	Alg 2	MC	A	A2.N.M.A.2d
37	Alg 2	MC	A	A2.N.M.A.3
38	Alg 2	MC	D	A2.A.SSE.A.1a
39	Alg 2	MC	C	A2.A.SSE.A.1b
40	Alg 2	MC	A	A2.A.APR.A.1
41	Alg 2	MC	D	A2.A.CED.A.2
42	Alg 2	MC	D	A2.F.IF.A.3
43	Alg 2	MC	D	A2.F.IF.B.5a
44	Alg 2	MC	D	A2.F.IF.B.6a
45	Alg 2	MC	C	A2.F.IF.B.6b
46	Alg 2	MC	D	A2.F.BF.A.1b
47	Alg 2	MC	A	A2.F.BF.B.4a
48	Alg 2	MC	B	A2.F.BF.B.4c
49	Alg 2	FIB	1.4	A2.F.LE.A.1a
50	Alg 2	MC	A	A2.F.LE.A.2
51	Alg 2	FIB	Mean is greater for Group 1; S.D. is greater for Group 2	A2.S.ID.A.1
52	Alg 2	MC	A	A2.S.ID.A.3
53	Alg 2	MC	D	A2.S.IC.A.2
54	Alg 2	FIB	Row 1: Statistic Row 2: Parameter Row 3: Statistic	A2.S.IC.A.3
55	Alg 2	MC	A	A2.S.CP.B.2a
56	Alg 2	MC	B	A2.S.CP.B.2b
57	Alg 2	MC	D	A2.S.CP.B.3
58	Alg 2	MC	C	A2.S.CP.C.4

Metadata Definitions:

Page Number	Page within PDF on which item can be found.
Grade	Grade level or Course.
Item Type	Indicates the type of item. MC= Multiple Choice; MS= Multiple Select
Key	Correct answer.
TN Standards	Primary educational standard assessed.

GRADE 3

What is another way to represent 3,678?

- A. $300 + 60 + 70 + 1$
- B. $3,000 + 600 + 70 + 8$
- C. Three six seven eight
- D. Three hundred six thousand seventy-eight

GRADE 3

Charlie spent 83 cents on candy. He gave the cashier 3 quarters and one dime. How much change should he get back?

- A.** 17¢
- B.** 7¢
- C.** 3¢
- D.** 2¢

GRADE 7

A number cube with faces labeled 1-6 is rolled. What is the probability of rolling a number greater than 3?

- A.** 0
- B.** 0.3
- C.** 0.5
- D.** 1

GRADE 7

Tammy predicts that flipping a coin 100 times will result in the coin landing on heads exactly 50 times.

Julio flips the same coin 100 times and records his results. The coin landed on heads 45 times.

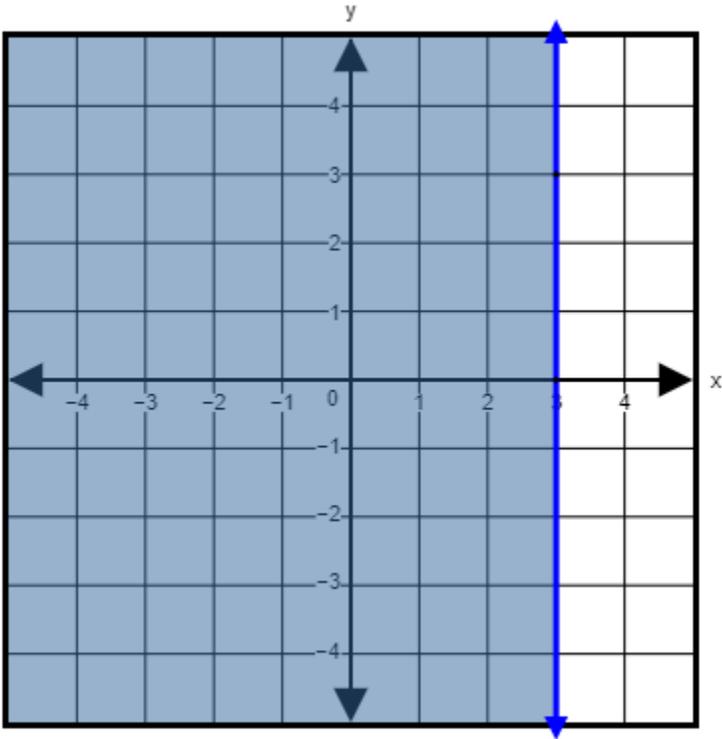
Based on these two scenarios, which statements are true?

Select the **two** correct answers.

- A.** The theoretical probability of a coin landing on heads is 0.50.
- B.** The experimental probability of a coin landing on heads in Julio's experiment is 0.45.
- C.** The experimental and theoretical probabilities of a simple event are always the same.
- D.** The theoretical probability of a coin landing on heads is 0.45.
- E.** The experimental probability of a coin landing on heads in Julio's experiment is 0.50.

GRADE 8

The graph represents the solution set of an inequality.

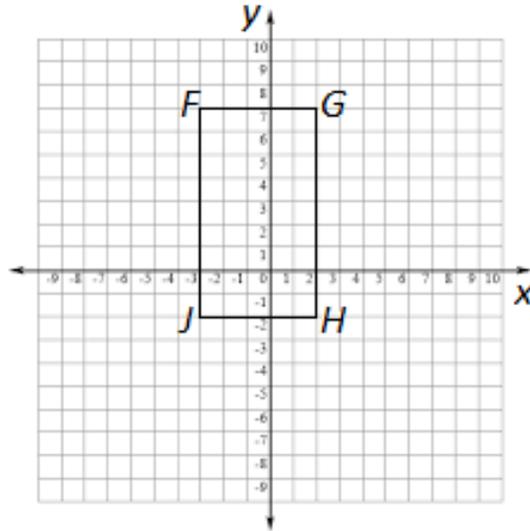


Which inequality is represented by the graph?

- A.** $x < 3$
- B.** $x > 3$
- C.** $x \leq 3$
- D.** $x \geq 3$

GRADE 8

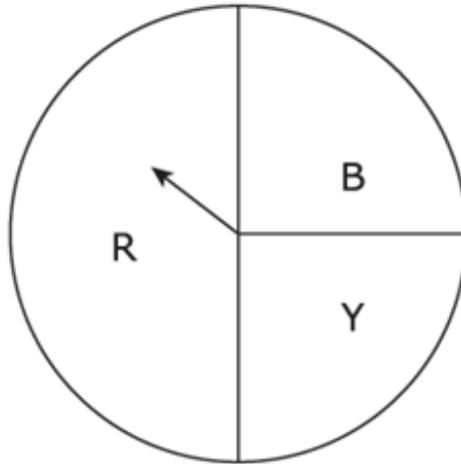
Rectangle $FGHJ$ is graphed on the coordinate plane.



Rectangle $FGHJ$ is dilated by a scale factor of 2 to create rectangle $F'G'H'J'$.
What is the perimeter, in units, of rectangle $F'G'H'J'$?

GRADE 8

In the spinner shown, the probability of spinning red (R) is $\frac{1}{2}$, and the probability of spinning either blue (B) or yellow (Y) is $\frac{1}{4}$.



The spinner will be spun twice.

What is the probability that the result of the first spin will be red and the second spin will be blue?

- A. $\frac{5}{16}$
- B. $\frac{1}{8}$
- C. $\frac{1}{4}$
- D. $\frac{3}{4}$

GRADE 8

Bobby flips a fair coin twice. One side of the coin is heads (H) and the other side is tails (T).

Which list shows all the possible outcomes for Bobby's coin flips?

- A. H,T,H,T
- B. HH,TT,HH,TT
- C. H,H,T,T
- D. HH,HT,TH,TT

Algebra I

A scientist is studying a certain species of caterpillar. She records the growth of a caterpillar from the time it hatches until it makes a cocoon, which usually takes about 2 weeks. During that time period, the caterpillar grows at a constant rate. It begins with a mass of 1.5 grams and grows at a rate of 0.2 grams per day.

Which **three** of the following could she use in labeling the graph to represent her data?

- A.** an x -axis showing time in days from 0 to 16
- B.** an x -axis showing time in weeks from 0 to 2
- C.** an x -axis showing time in months from 0 to 16
- D.** a y -axis showing mass in grams from 0.5 to 4.0
- E.** a y -axis showing mass in grams from 0 to 5

Algebra I

A horse holds the record for running a 2-kilometer race in 1 minute.

Which conversions are the **most** helpful to find a product that represents the horse's average speed for the race in miles per hour?

Select the **two** correct answers.

A. $\frac{1 \text{ minute}}{60 \text{ seconds}}$

B. $\frac{60 \text{ seconds}}{1 \text{ minute}}$

C. $\frac{60 \text{ minutes}}{1 \text{ hour}}$

D. $\frac{1.6 \text{ kilometers}}{1 \text{ mile}}$

E. $\frac{1 \text{ mile}}{1.6 \text{ kilometers}}$

Algebra I

An inequality is given.

$$5 - 2(-3x + 8) \leq 8x - 7$$

What is the solution of the inequality?

- A. $x \leq -9$
- B. $x \geq -2$
- C. $x \leq 14$
- D. $x \geq 31$

Algebra I

An absolute value equation is given.

$$-6|9-2x|=-18$$

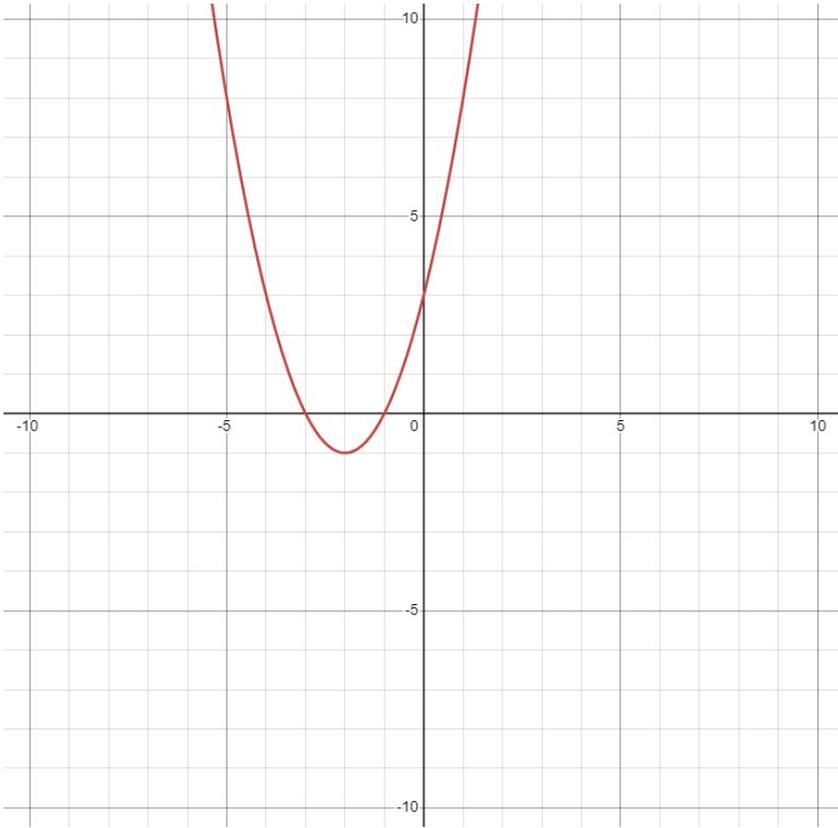
What is the greatest value of x that is a solution to the equation?

Enter your answer in the space provided.

Algebra I

Function $f(x) = x^2 + 4x + 3$ is displayed in the graph below.

On what interval(s) is $f(x) \leq 0$?



- A.** $x \leq 3$
- B.** $x \geq 3$
- C.** $x \leq -3$ and $x \geq -1$
- D.** $-3 \leq x \leq -1$

Algebra I

The equation shown represents that the circumference of a circle, $C(d)$, is a function of the length of the diameter, d , of the circle.

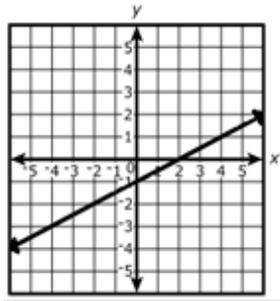
$$C(d) = \pi d$$

The function is graphed on a coordinate plane. What is the rate of change of the function?

- E.** $C(d)$
- F.** π
- G.** d
- H.** πd

Algebra I

The function $f(x)$ is defined as $f(x) = 2^x$. The graph of the function $g(x)$ is shown.



Which statement is true about the graphs of $f(x)$ and $g(x)$?

- A.** The graph of $f(x)$ and the graph of $g(x)$ are always increasing.
- B.** The graph of $f(x)$ and the graph of $g(x)$ cross the x -axis at one point.
- C.** The graph of $f(x)$ and the graph of $g(x)$ are represented by a straight line.
- D.** The graph of $f(x)$ and the graph of $g(x)$ cross the y -axis at the same point.

Algebra I

Given the function $f(x) = x^2 - x - 12$, which of the following statements is true?

- A.** The zeros of the function are both positive.
- B.** The zeros of the function are both negative.
- C.** The function is decreasing for $x < 0.5$ and increasing for $x > 0.5$.
- D.** The function is increasing for $x < 0.5$ and decreasing for $x > 0.5$.

Algebra I

A teacher calculates a student's final grade using the following weights:

- 25% for homework
- 45% for tests
- 30% for the final exam

A student gets a score of 74 for homework and 82 for tests. What score does the student need in the final exam to achieve a final grade of 80?

- A.** 80
- B.** 82
- C.** 84
- D.** 87

Geometry

A piece of wood in the shape of a rectangular prism is 5.5 inches wide, 3.5 inches thick, and 10 **feet** long.

What is the volume, in cubic **feet**, of the piece of wood?

- A.** 1.34
- B.** 16.04
- C.** 192.5
- D.** 2,310

Geometry

A restaurant owner wants to buy containers in the shape of rectangular prisms for storing. The table shows two types of containers she is considering. Each pack costs the same amount.

Type of Container	Length (in.)	Width (in.)	Height (in.)	Containers per Pack
Square base	6.12	6.12	3.37	3
Rectangular base	10	6.75	3.18	2

She wants all the containers to be the same type.

Which statement best justifies the containers are the best value per pack?

- A.** The containers with the rectangular base are the best value because they have less volume per pack.
- B.** The containers with the rectangular base are the best value because they have greater volume per pack.
- C.** The containers with the square base are the best value because they have greater volume per pack.
- D.** The containers with the square base are the best value because they have less volume per pack.

Geometry

Samuel measured the height and radius of a cylindrical container to the nearest tenth of a meter. The measurements are given.

- The height is 5.1 meters.
- The radius of the base is 1.8 meters.

What could be the measure, in cubic meters, Samuel uses for the volume of the container?

- A.** 5π
- B.** 15.47π
- C.** 18.77π
- D.** 20π

Geometry

Micah wants to find a point that is equidistant from the three vertices of a triangle.

Which construction would be **most** helpful to begin his construction?

A.



C.



B.



D.



Geometry

A circle has a center at $(6, 2)$. Point B $(12, 15.75)$ is on the circle.

What is the radius of the circle, rounded to the nearest whole unit?

Enter your answer in the space provided.

Geometry

The faces of a fair number cube are labeled 1 through 6. The number cube is rolled once. Two events are described.

- A possible outcome is the event that the number 1 is rolled.
- Another possible outcome is the event that an even number is rolled.

What is the total number of outcomes that is **not** in either of these events?

- A.** 0
- B.** 1
- C.** 2
- D.** 4

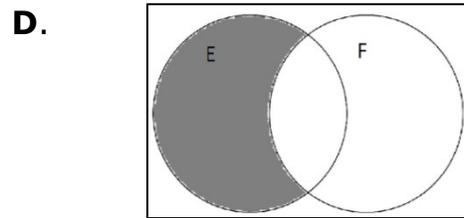
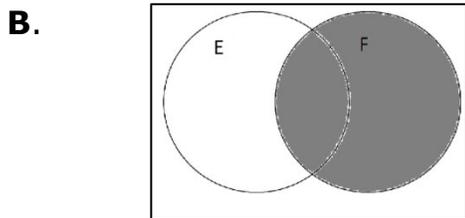
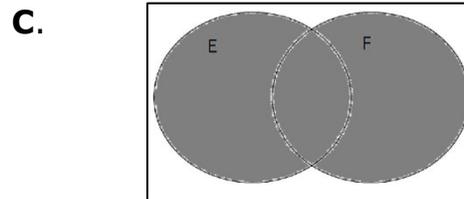
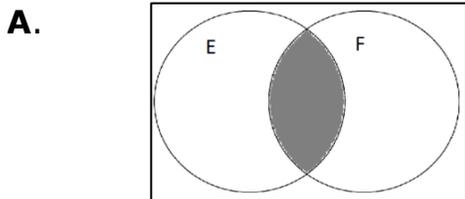
Geometry

At a school, 15 students play on the basketball team and 14 students play on the soccer team. Some students play on both teams.

One student is selected at random.

- Event E is when the selected student plays on the basketball team.
- Event F is when the selected student plays on the soccer team.

Which Venn diagram has **only** the set $E \cap F$ shaded?



Geometry

A survey was conducted to predict if high school students will eat food served in the cafeteria. The results for the 410 students surveyed are shown in the table.

Grade	Yes	No
9th	67	33
10th	63	47
11th	32	68
12th	12	88

Which number is closest to the probability that a student will **not** eat food served in the school cafeteria, given that the student is in 10th grade?

- A.** 0.11
- B.** 0.20
- C.** 0.43
- D.** 0.75

Geometry

A total of 100 adults responded to a survey that asked whether they had any pets and whether they had any kids. The results of the survey are shown in the table.

	Has Kids	Does Not Have Kids	Total
Has Pets	34	12	46
Does Not Have Pets	29	25	54
Total	63	37	100

Lisa wants to determine the number of people who have pets **or** kids. She adds 63 and 46, then subtracts 34.

Which statement explains whether Lisa's method is correct?

- A.** Lisa's method is correct because the people who have pets and kids should not be counted at all.
- B.** Lisa's method is correct because the people who have pets and kids should be counted exactly once.
- C.** Lisa's method is **not** correct because she is not counting the people who have pets and kids at all.
- D.** Lisa's method is **not** correct because she is not counting the people who have pets and kids twice.

Geometry

A high school has 250 twelfth-grade students. The numbers of twelfth-grade students who were members of the track team and the band are described.

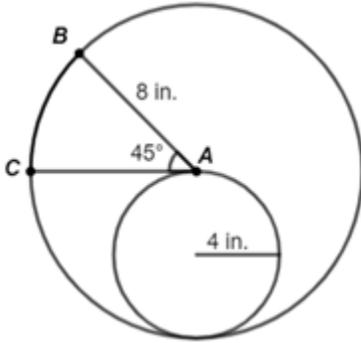
- 25 twelfth-grade students were members of the track team.
- 20 twelfth-grade students were members of the band.
- 5 twelfth-grade students were members of both the track team and the band.

If 1 twelfth-grade student from the high school is randomly selected, what is the probability that the student will be a member of the track team or a member of the band?

- A.** 0.14
- B.** 0.16
- C.** 0.18
- D.** 0.20

Geometry

Circle A is shown with radius of 8 inches. Central angle BAC measures 45° . The radius of the smaller circle inside circle A is 4 inches. A point is selected at random inside circle A .



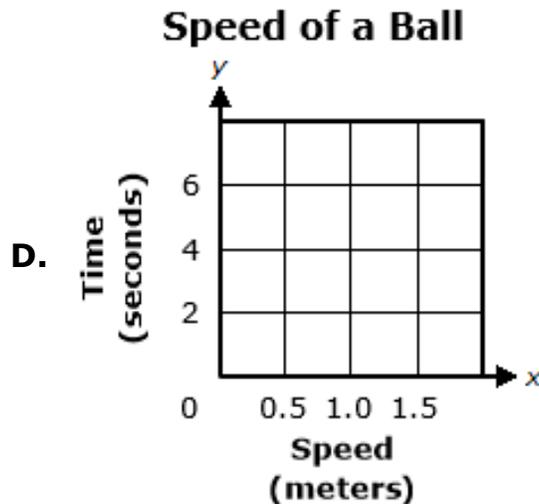
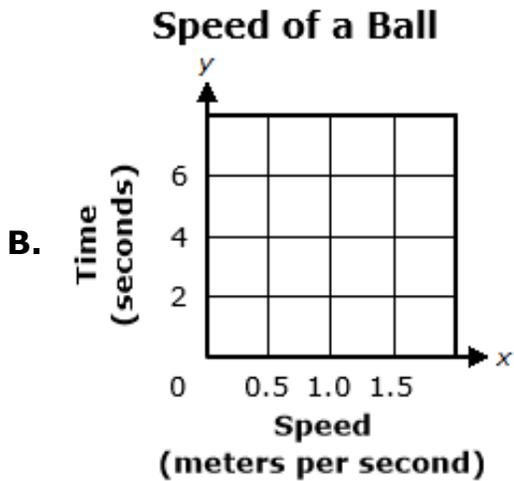
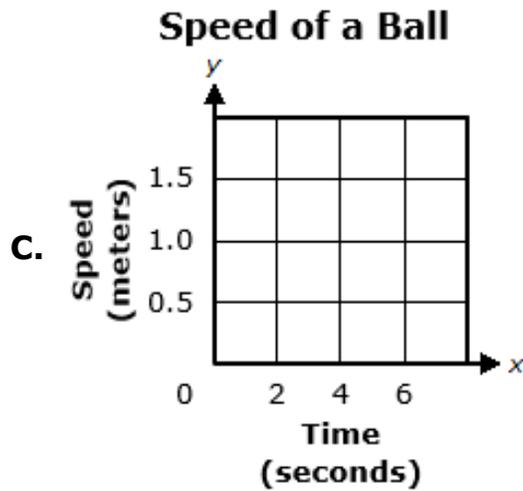
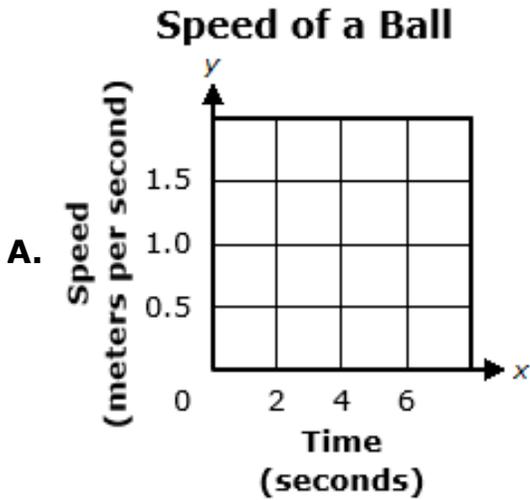
What is the probability that the point is **neither** in sector BAC **nor** in the smaller circle?

- A. $\frac{1}{8}$
- B. $\frac{2}{8}$
- C. $\frac{5}{8}$
- D. $\frac{7}{8}$

Algebra II

A ball takes 5.2 seconds to roll from the top of a ramp to the bottom. The ball's initial speed is 0 meters per second, and its speed at the bottom of the ramp is 1.4 meters per second.

Which axes show the **most** appropriate units and scale to graph the ball's speed as a function of time?



Algebra II

The volume V of a cylinder with length h and radius r is given by $V = \pi r^2 h$.

An unsharpened pencil has a length of 17.5 centimeters and a radius of 5 **millimeters**. Which value is closest to the volume of the pencil, in cubic centimeters?

- A. 1.374
- B. 13.74
- C. 137.4
- D. 1,374

Algebra II

Samuel measured the height and radius of a cylindrical container to the nearest tenth of a meter. The measurements are given.

- The height is 5.1 meters.
- The radius of the base is 1.8 meters.

What could be the measure, in cubic meters, Samuel uses for the volume of the container?

- A.** 5π
- B.** 15.47π
- C.** 18.77π
- D.** 20π

Algebra II

The prices of items at two different supermarkets are shown. Toilet paper at Store A costs \$4.99 and at Store B costs \$6.99. Toothpaste at Store A costs \$2.99 and at Store B costs \$3.25. The data for this can be represented by the following matrix:

$$G = \begin{bmatrix} 4.99 & 6.99 \\ 2.99 & 3.25 \end{bmatrix}$$

Which statement is true about the matrix?

- A.** The second column represents the price of toothpaste at both supermarkets.
- B.** The first row represents the price of toilet paper at both supermarkets.
- C.** The second row represents the cost of toothpaste at Store A.
- D.** The first column represents the items at Store B.

Algebra II

The coordinates of a triangle's vertices are given in the matrix T .

$$T = \begin{bmatrix} 4 & -2 \\ 0 & 6 \\ -8 & 4 \end{bmatrix}$$

The matrix $2T$ represents the coordinates of the triangle's vertices after a transformation. Which matrix is $2T$?

A. $\begin{bmatrix} 6 & 0 \\ 2 & 8 \\ -6 & 6 \end{bmatrix}$

B. $\begin{bmatrix} 2 & -1 \\ 0 & 3 \\ -4 & 2 \end{bmatrix}$

C. $\begin{bmatrix} 2 & -4 \\ -2 & 4 \\ -10 & 2 \end{bmatrix}$

D. $\begin{bmatrix} 8 & -4 \\ 0 & 12 \\ -16 & 8 \end{bmatrix}$

Algebra II

Lisa, Jenny, and Kyra kept track of the number of miles they ran on Saturday and Sunday. Their data are represented by the matrices M and N .

$$M = \begin{bmatrix} 4.7 \\ 5.8 \\ 5.5 \end{bmatrix}, N = \begin{bmatrix} 3.9 \\ 5.1 \\ 5.3 \end{bmatrix}$$

Which matrix represents $M + N$, the total number of miles each person ran?

A. $\begin{bmatrix} 8.6 \\ 10.9 \\ 10.8 \end{bmatrix}$

B. $\begin{bmatrix} 0.8 \\ 0.7 \\ 0.2 \end{bmatrix}$

C. $\begin{bmatrix} 16.0 \\ 14.3 \end{bmatrix}$

D. $\begin{bmatrix} 14.3 \\ 16.0 \end{bmatrix}$

Algebra II

Two roads will be built. The given matrices represent the length of each road that is paved and unpaved, and the cost to build each mile of paved and unpaved road.

Length of Road			Cost, in Thousands of Dollars per Mile	
	Paved Miles	Unpaved Miles		Cost
Road A	4.5	0.4	Paved	580
Road B	1.2	2.8	Unpaved	65

The product of these matrices represents the total cost of each road in thousands of dollars.

What is the product $\begin{bmatrix} 4.5 & 0.4 \\ 1.2 & 2.8 \end{bmatrix} \begin{bmatrix} 580 \\ 65 \end{bmatrix}$?

A. $\begin{bmatrix} 2,636 \\ 878 \end{bmatrix}$

B. $\begin{bmatrix} 2,842 \\ 260 \end{bmatrix}$

C. $\begin{bmatrix} 2,688 \\ 414 \end{bmatrix}$

D. $\begin{bmatrix} 3,306 \\ 208 \end{bmatrix}$

Algebra II

Susana and Arturo bought cookies at a bakery. The bakery offered 2 pre-filled boxes.

In matrix P , Row 1 represents Box 1 and Row 2 represents Box 2. Column 1 represents Susana's purchase and Column 2 represents Arturo's purchase.

$$P = \begin{bmatrix} 1 & 0 \\ 0 & 1 \end{bmatrix}$$

In matrix C , Row 1 represents oatmeal cookies and Row 2 represents chocolate chip cookies. Column 1 represents Box 1 and Column 2 represents Box 2.

$$C = \begin{bmatrix} 2 & 3 \\ 5 & 1 \end{bmatrix}$$

What is the product CP ?

A. $\begin{bmatrix} 2 & 3 \\ 5 & 1 \end{bmatrix}$

B. $\begin{bmatrix} 3 & 2 \\ 5 & 1 \end{bmatrix}$

C. $\begin{bmatrix} 2 & 3 \\ 1 & 5 \end{bmatrix}$

D. $\begin{bmatrix} 3 & 2 \\ 1 & 5 \end{bmatrix}$

Algebra II

A TV station executive is planning the new lineup for next season's shows. On Monday nights, there will be 3 sitcoms and 2 dramas, for a total of 155 minutes of programming, not counting commercials. On Tuesday nights, she has scheduled 1 sitcom, for a total of 25 minutes of non-commercial programming. All sitcoms have the same length, and all dramas have the same length. How long is each type of show?

- A.** Sitcoms are 25 minutes long, and dramas are 40 minutes long.
- B.** Sitcoms are 40 minutes long, and dramas are 25 minutes long.
- C.** Sitcoms are 25 minutes long, and dramas are 80 minutes long.
- D.** Sitcoms are 80 minutes long, and dramas are 25 minutes long.

Algebra II

The equation $A = 1,750(1 + 0.04)^t$ represents the account balance t years after an account was created.

Which statement describes the account balance over time?

- A.** The account balance will decrease 0.04% each year.
- B.** The account balance will increase 0.04% each year.
- C.** The account balance will decrease 4% each year.
- D.** The account balance will increase 4% each year.

Algebra II

The profit a company earns on selling x units is the difference between the revenue from selling x units and the cost to produce x units. The expression represents the profit the company will make on x units.

$$100 + 30x - x(90 - x)$$

If the company makes a profit, which part of the expression represents the revenue?

- A.** $30x$
- B.** $90 - x$
- C.** $100 + 30x$
- D.** $x(90 - x)$

Algebra II

The expression $(x + 2)$ is a factor of some polynomial $p(x)$. What else must be true about $p(x)$?

- A.** $p(-2) = 0$
- B.** $p(0) = -2$
- C.** $p(0) = 2$
- D.** $p(2) = 0$

Algebra II

Two circular paintings are described.

- The diameter of Val's painting is x inches.
- The diameter of Wyatt's painting is y inches.
- The area of Wyatt's painting is 100 square inches greater than the area of Val's painting.

Which equation represents the relationship between x and y ?

A. $\frac{1}{2}\pi x^2 = \frac{1}{2}\pi y^2 + 100$

B. $\frac{1}{2}\pi y^2 = \frac{1}{2}\pi x^2 + 100$

C. $\frac{1}{4}\pi x^2 = \frac{1}{4}\pi y^2 + 100$

D. $\frac{1}{4}\pi y^2 = \frac{1}{4}\pi x^2 + 100$

Algebra II

The area, in square inches, of a circle with diameter d inches is given by

$$f(d) = \frac{\pi d^2}{4}.$$

Which statement is true about a circle that has an area of 0.5 square inch?

- A.** The circle's diameter is approximately 0.20 inch because $f(0.5) \approx 0.20$.
- B.** The circle's diameter is approximately 0.56 inch because $f(0.56) \approx 0.5$.
- C.** The circle's diameter is approximately 0.62 inch because $f(0.5) \approx 0.62$.
- D.** The circle's diameter is approximately 0.80 inch because $f(0.80) \approx 0.5$.

Algebra II

A ball is thrown straight up into the air. The relationship between the height of the ball and the time since it was thrown can be modeled by the function $f(x) = -16x^2 + 96x + 6$, where $f(x)$ represents the height of the ball after x seconds.

Which function reveals the maximum height the ball reaches?

- A.** $f(x) = -16(x - 3)^2 + 6$
- B.** $f(x) = -16(x - 3)^2 + 15$
- C.** $f(x) = -16(x - 3)^2 + 144$
- D.** $f(x) = -16(x - 3)^2 + 150$

Algebra II

The function $f(x)$ is represented by the equation $f(x) = 3(x^2 + 2)$. The values for the quadratic function $h(x)$ are shown in the table.

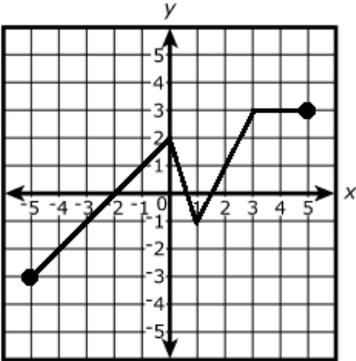
x	-2	-1	0	1	2
$h(x)$	6	-3	-6	-3	6

Which statement is true?

- A.** The y -intercept of $f(x)$ is 4 units above the y -intercept of $h(x)$.
- B.** The y -intercept of $f(x)$ is 6 units above the y -intercept of $h(x)$.
- C.** The y -intercept of $f(x)$ is 8 units above the y -intercept of $h(x)$.
- D.** The y -intercept of $f(x)$ is 12 units above the y -intercept of $h(x)$.

Algebra II

The graph of a function $f(x)$ is given.



On which interval is $f(x)$ increasing the most rapidly?

- A.** -5 to 0
- B.** 0 to 1
- C.** 1 to 3
- D.** 3 to 5

Algebra II

Joaquin makes a computer animation of a circle that grows larger. The radius r of the circle, in millimeters, after t seconds is given by $r(t) = 3 + 2t$.

The area A of a circle with radius r is given by $A(r) = \pi r^2$.

What is $A(r(t))$, which represents the circle's area after t seconds?

- A.** $3 + 2\pi r^2$
- B.** $4\pi t^2 + 9\pi$
- C.** $3\pi r^2 + 2\pi r^2 t$
- D.** $4\pi t^2 + 12\pi t + 9\pi$

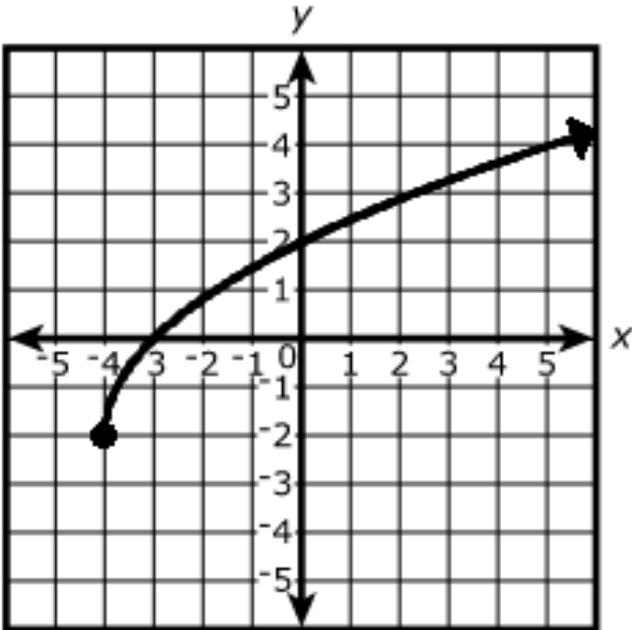
Algebra II

Which function is **not** one-to-one on its domain?

- A. $f(x) = x^2$
- B. $f(x) = 10^x$
- C. $f(x) = \sqrt{x}$
- D. $f(x) = \log x$

Algebra II

The graph of a function $f(x)$ is shown.



What is the domain of the function's **inverse**, $f^{-1}(x)$?

- A. $[-4, \infty)$
- B. $[-2, \infty)$
- C. $(-\infty, -4]$
- D. $(-\infty, -2]$

Algebra II

An equation is given.

$$3^{12x} = 9^{x+7}$$

What value of x , rounded to the nearest tenth, is a solution to the equation?

Enter your answer in the space provided.

Algebra II

Three functions are given.

$$f(x) = 100x^2 - x$$

$$g(x) = 30x + 4,000$$

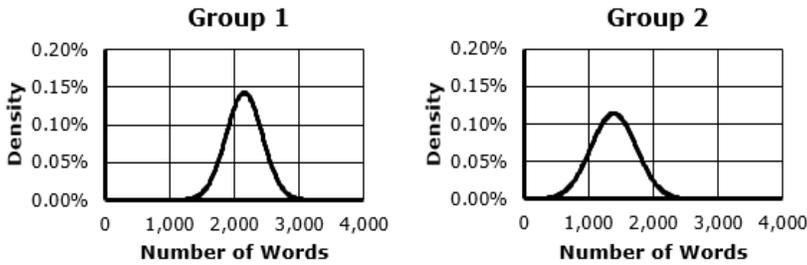
$$h(x) = 1.02^x$$

Which inequality is true for large values of x ?

- A.** $g(x) < f(x) < h(x)$
- B.** $h(x) < f(x) < g(x)$
- C.** $h(x) < g(x) < f(x)$
- D.** $f(x) < g(x) < h(x)$

Algebra II

Researchers conducted a study about the effects of reading to children. They measured the number of words that two groups of 5-year-olds knew. The data are summarized in these density curves.



Determine whether each statistic was Greater for Group 1, Greater for Group 2, or Equal for Both Groups.

Select **one** box per row.

	Greater for Group 1	Greater for Group 2	Equal for Both Groups
Mean			
Standard Deviation			

Algebra II

A factory packages bags of flour. The weights of the bags are normally distributed with a mean weight of 5.0 pounds and a standard deviation of 0.08 pound.

Quality testers find a bag of flour that weighs 4.95 pounds. What is the z-score of this bag's weight?

- A.** -0.625
- B.** -0.004
- C.** 0.004
- D.** 0.625

Algebra II

Jessica wants to estimate the average age of the students at her college. She sends a letter to all the students at her college describing her research and includes an anonymous survey asking for their age.

Which statement **best** evaluates the data Jessica will collect from her survey?

- A.** Jessica's data will likely be unbiased because she sent the survey to all the students at her college.
- B.** Jessica's data will likely be unbiased because she made the survey anonymous.
- C.** Jessica's data will likely be biased because she told the students what she was studying.
- D.** Jessica's data will likely be biased because not everyone will respond to the survey.

Algebra II

Determine whether each measurement is a Statistic or a Parameter.

Select **one** answer per row.

Measurement	Statistic	Parameter
In a randomly selected group of first grade students, the average height was 45 inches.		
The median age of teachers at a school is 39 years.		
In a phone survey, 89% of people who responded said they have internet access at home.		

Algebra II

A company assigns each employee a random 6-letter code, using the letters E, F, G, and H. Letters can be repeated.

Which number is closest to the probability that an employee's code will **not** contain the letter G?

- A.** 0.18
- B.** 0.25
- C.** 0.75
- D.** 0.82

Algebra II

A restaurant has 9 different types of fruit in the kitchen. The chef randomly chooses 3 fruits. What is the probability the chef will randomly choose an apple, a pear, and an orange?

A. $\frac{1}{504}$

B. $\frac{1}{84}$

C. $\frac{1}{6}$

D. $\frac{1}{3}$

Algebra II

Peter and Alex each flip a coin to see if it is fair.

- Peter flips the coin 10 times.
Peter says the coin is **not** fair because 7 of the results are Tails.
- Alex flips the coin 100 times.
Alex says the coin is **not** fair because 52 of the results are Tails.

Which statement best describes Peter and Alex's conclusions?

- A.** Peter's conclusion is valid, but Alex's conclusion is not valid.
- B.** Alex's conclusion is valid, but Peter's conclusion is not valid.
- C.** Both Alex's and Peter's conclusions are valid.
- D.** Neither Alex's nor Peter's conclusion is valid.

Algebra II

A survey was conducted to predict if the high school students will eat food served in the cafeteria. The results for the 410 students surveyed are shown in the table.

Grade	Yes	No
9th	67	33
10th	63	47
11th	32	68
12th	12	88

Which number is closest to the probability that a student will **not** eat food served in the school cafeteria, given that the student is in 10th grade?

- A.** 0.11
- B.** 0.20
- C.** 0.43
- D.** 0.75

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Tennessee Comprehensive
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Math
Test Practice Items
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