## Student Name:

## Algebra I

## Practice Test 3 Booklet



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## Algebra I

## DIRECTIONS

Read each problem carefully. Then work the problem and find your answer among the answer choices.

## SAMPLE A

What value of $x$ makes the equation $2 x+1=7$ true?

A 2
B 3
C 4
D 5

## SAMPLE B



Which of these is equivalent to the perimeter of this triangle?

F $\quad 2 x^{2}+8$
G $2 x^{2}+11$
H $3 x+8$
J $3 x+11$

1 Which of the following expressions is equivalent to $-3(-3 p+4 q)-2 q$ ?

A $9 p-14 q$
B $9 p+10 q$
C $-9 p+10 q$
D $-9 p-14 q$

2 In the equation below, $y$ is a function of $x$.

$$
y=4 x+8
$$

If the value of $x$ is decreased by 3 , how will the value of $y$ change?

F The value of $y$ will decrease by 12 .
G The value of $y$ will decrease by 4 .
H The value of $y$ will increase by 8 .
J The value of $y$ will increase by 10 .

3 Mr. Bennett counted the number of customers that came into his store during the busiest morning and afternoon hours on two weekends. The matrices below show the number of customers he counted.

First Weekend Second Weekend
Sat. Sun. Sat. Sun.
\(\underset{Morning}{Afternoon}\left[\begin{array}{ll}\mathbf{2 4} \& \mathbf{2 8} <br>

\mathbf{3 6} \& \mathbf{3 0}\end{array}\right] \quad\)| Morning |
| :---: |
| Afternoon |\(\left[\begin{array}{ll}32 \& 25 <br>

41 \& 45\end{array}\right]\)

Which matrix represents the total number of customers that came into Mr. Bennett's store during the busiest hours of the two weekends?

A
Sat. Sun.
Morning
Afternoon $\left[\begin{array}{ll}56 & 53 \\ 77 & 75\end{array}\right]$

B
Sat. Sun.
$\left.\begin{array}{c}\text { Morning } \\ \text { Afternoon }\end{array} \begin{array}{ll}52 & 57 \\ 66 & 86\end{array}\right]$
C Sat. Sun.
Morning $\left[\begin{array}{ll}60 & 58 \\ 73 & 70\end{array}\right]$
Afternoon 73 70
D
Sat. Sun.
Morning $\left[\begin{array}{cc}8 & -3\end{array}\right]$
Afternoon 515 ]

4 Triangle PRS has vertices $P(-4,5)$, $R(-4,-4)$, and $S(8,-4)$.


Which of the following is a true statement?
F The length of $\overline{R S}$ is 9 units.

G The length of $\overline{P S}$ is 15 units.
H The slope of $\overline{R S}$ is $-\frac{4}{3}$.
J The slope of $\overline{P R}$ is 0 .

5 The scatter plot below shows the growth at the end of each year of a tree that Keisha planted in her backyard.

Tree Growth


Based on the trend line shown, which is closest to the expected height of the tree at the end of year 7 ?

A 80 inches
B 85 inches
C 90 inches
D 95 inches

6 Greg correctly graphed $\overleftrightarrow{P Q}$ and $\overleftrightarrow{R S}$ on a coordinate grid. $\stackrel{P Q}{ }$ passes through points $(2,5)$ and $(-7,-1) . R S$ passes through points $(-3,8)$ and $(6,-7)$.

Which of the following describes the graphs of $\overleftrightarrow{P Q}$ and $\overleftrightarrow{R S}$ ?

F The lines are parallel.
G The lines are the same.
H The lines are intersecting and perpendicular.
J The lines are intersecting but not perpendicular.

7 Which of the following polynomials is prime over the set of rational numbers?

A $x^{2}+20 x+36$

B $\quad x^{2}+15 x+36$

C $x^{2}-5 x-36$

D $x^{2}-13 x-36$

8 Kiara plans to cut a 108 -inch roll of satin ribbon into 6 -inch and 8 -inch strips of ribbon.

Which of the following inequalities can be used to determine $x$, the maximum number of 6 -inch strips, and $y$, the number of 8 -inch strips Kiara should be able to cut from the 108 -inch roll of ribbon?

F $\quad 6 x+8 y>108$
G $\quad 8 x+6 y \geq 108$
H $8 x+6 y<108$
J $6 x+8 y \leq 108$

9 Which graph best represents a line parallel to a line with the equation $3 x-2 y=-8$ ?
A

C

B

D


10 Which of the following is equivalent to the expression shown below?
$\left(16 x^{3}+3 x y^{2}-8 y^{3}\right)-\left(11 x^{3}-7 x y^{2}-24 y^{3}\right)$

F $\quad 5 x^{3}-4 x y^{2}-32 y^{3}$

G $\quad 5 x^{3}+10 x y^{2}+16 y^{3}$

H $27 x^{3}-4 x y^{2}-32 y^{3}$

J $27 x^{3}+10 x y^{2}+32 y^{3}$

11 If point $C(-3,8)$ is the midpoint of a line segment with endpoints $A(-9,-2)$ and $B$, what are the coordinates of point $B$ ?

A $(-6,3)$
B $(-15,14)$
C $(-3,-18)$
D $(3,18)$

12 Brenda used the letters $P$ and $Q$ to correctly show the location of the solutions on a number line of the equation shown below.

$$
|3-x|-5=2
$$

Which of the following could be Brenda's number line?

F


G


H


J


13 Which is the greatest common factor of the expression below?

$$
32 a^{3} b^{2}+36 a^{2} c^{2}-16 a b^{3}
$$

A $4 a$

B $\quad 4 a^{3} b^{2} c^{3}$

C $6 a b c$

D $8 a^{2} b^{2}$

14 Which of the following systems of linear equations are neither parallel nor perpendicular?

F

$$
\begin{aligned}
& y=\frac{8}{3} x-2 \\
& y=\frac{8}{3} x-\frac{5}{3}
\end{aligned}
$$

G $\quad y=-\frac{7}{4} x-\frac{1}{2}$
$y=\frac{4}{7} x-\frac{1}{7}$

H $y=\frac{6}{5} x-\frac{4}{5}$
$y=-\frac{6}{5} x-\frac{3}{5}$

J

$$
\begin{aligned}
& y=-\frac{3}{2} x+\frac{1}{2} \\
& y=-\frac{3}{2} x+3
\end{aligned}
$$

15 The number of steps per second that a runner takes is called the stride rate. The table below compares the speed of several top female runners with their average stride rates.

Stride Rate Versus Speed

| Stride Rate, $x$ <br> (steps per second) | Speed, $y$ <br> (feet per second) |
| :---: | :---: |
| 3.05 | 15.86 |
| 3.12 | 16.88 |
| 3.17 | 17.50 |
| 3.25 | 18.62 |
| 3.36 | 19.97 |
| 3.46 | 21.06 |
| 3.55 | 22.11 |

Which of the following equations best represents the line-of-best fit for this set of data?

A $y=5.7 x$
B $y=0.5 x-6.25$
C $y=3 x+19$
D $y=12 x-22$

16 The graph of a quadratic function is shown below.


Which appears to be the solution set for this function?

F $\{2,4\}$
G $\{-2,4\}$
H $\quad\{-4,2\}$
J $\{-4,-2\}$

17 Which is equivalent to the expression shown below?
$-2 a^{4}-3 a^{2}+7 a+6-6 a^{3}+a^{4}+7 a^{2}-6$

A $-a^{4}-6 a^{3}+4 a^{2}+7 a$

B $-a^{8}-6 a^{3}+4 a^{4}+12$

C $-3 a^{4}-6 a^{3}+10 a^{2}+7 a$

D $-3 a^{8}-6 a^{3}+10 a^{4}+7 a$

18 A radar system monitors a circular area approximately 450 square miles.

Which is closest to the radius of the circular area?

F $\quad 12$ miles
G 25 miles
H $\quad 72$ miles
J 140 miles

19 Which of the following is equivalent
to $\frac{\left(3 x^{3} y\right)^{2}\left(2 y^{3}\right)}{6 x y}$ ?
A $x^{5} y^{4}$

B $3 x^{5} y^{4}$

C $3 x^{5} y^{5}$

D $12 x^{5} y^{4}$

20 The perimeter $P$ of a rectangle with $l$, length, and a width of 4 units can be calculated by using the following formula.

$$
P=2(l+4)
$$

How will the perimeter of the rectangle change if the length is increased by 1 unit?

F It will increase by 2 units.
G It will remain the same.
H It will increase by 1 unit.
J It will decrease by 2 units.

21 Which of the following could be used as justification that $3 x^{2}+10 x-8$ is NOT prime over the set of rational numbers?

A $(3 x+2)(x-4)$
B $(3 x+4)(x-2)$
C $(3 x-2)(x+4)$
D $(3 x-4)(x+2)$

22 What is the solution set for the equation shown below?

$$
|3-x|-8=8
$$

F $\quad\{-5,11\}$
G $\{-13,3\}$
H $\{-13,19\}$
J $\{-19,0\}$

23 The scatter plot below shows the average employee's weekly earnings for Mississippi in 1989, 1994, and 1998.


Based on the data, which of the following is the best prediction of the average employee's weekly earnings for 2007?

A $\$ 485$
B $\$ 495$
C $\$ 500$
D $\$ 510$

24 Matrix $R$ is shown below.

$$
R=\left[\begin{array}{rrr}
-4 & 7 & 9 \\
6 & -5 & 4 \\
8 & 3 & -2
\end{array}\right]
$$

Which matrix represents $-6 R$ ?
$\mathbf{F}\left[\begin{array}{rrr}-24 & 45 & 54 \\ 36 & -30 & 24 \\ 42 & 18 & -12\end{array}\right]$
$\mathbf{G}\left[\begin{array}{rrr}24 & -42 & -54 \\ -36 & 30 & -24 \\ -48 & -18 & 12\end{array}\right]$

H $\left[\begin{array}{rrr}-10 & 13 & 15 \\ 12 & -11 & 10 \\ 14 & 9 & -8\end{array}\right]$

J $\left[\begin{array}{rrr}-10 & 1 & 3 \\ 0 & -11 & -2 \\ 2 & -3 & -8\end{array}\right]$

25 Which equation is true for all the values of $x$ and $y$ shown in the table?

| $x$ | $y$ |
| :---: | :---: |
| -2 | -7 |
| -1 | -7 |
| 1 | -1 |
| 2 | 5 |

A $y=x^{2}+3 x-5$

B $\quad y=x^{2}-3 x+5$

C $y=2 x^{2}+5 x-5$
D $y=2 x^{2}-5 x+5$

26 Camille compared the approximate speed of two different birds diving through the air.

- One type of eagle reached an approximate speed of $\mathbf{2 9 3}$ feet per second.
- One type of falcon reached an approximate speed of $\mathbf{2 5 7}$ feet per second.

Which is closest to the difference in the distance of a dive between the eagle and the falcon if both types of birds dive for 2.5 seconds?

F 36 feet
G 90 feet
H 115 feet
J 220 feet

27 The height of a tree in a park was 48 inches on April 1. Six months later, the same tree was 52 inches.

What was the rate of change, in inches, per month?

A $\frac{26}{3}$
B 8
C $\frac{12}{13}$
D $\frac{2}{3}$

28 Which of these is the solution set to the equation $|3 x-5|=2$ ?

F $\left\{-\frac{7}{3},-1\right\}$
G $\left\{-\frac{7}{3}, 1\right\}$
H $\quad\left\{\frac{7}{3}, 1\right\}$
J $\left\{\frac{7}{3},-1\right\}$

29 Josh used the equation below to determine $a$, his altitude in feet above sea level, at $t$ hours when hiking from a base camp to a camp up a mountain. The base camp was located at 2500 feet above sea level.

$$
a=\frac{431}{2} t+2500
$$

The first camp Josh came to was located 5500 feet above sea level.

If Josh hiked at a constant rate, which is closest to the number of hours it took him to reach the first camp?

A 7
B 14
C 16
D 26

30 The graphs below show the data for each of ten people who competed in the 50 -yard dash and the 1-mile run. Which scatter plot contains a line that best represents the line-of-best fit for the data?
F


G


H


J


31 The table below contains values of $x$ and $y$ that satisfy the equation of a line.

| $x$ | $y$ |
| :---: | :---: |
| -2 | -7 |
| -1 | -3 |
| 0 | 1 |
| 1 | 5 |

What is the equation of a line that contains all the points in the table of values?

A $y=4 x+1$

B $y=3 x-1$
C $y=-\frac{1}{2} x-6$
D $y=-\frac{1}{4} x-\frac{13}{2}$

32 Matrices $S$ and $T$ are shown below.

$$
S=\left[\begin{array}{rr}
-12 & 9 \\
6 & 14
\end{array}\right] T=\left[\begin{array}{rr}
5 & -2 \\
-7 & -6
\end{array}\right]
$$

Which of the following represents $2 S-3 T$ ?
F $\left[\begin{array}{rr}-39 & 24 \\ 19 & 36\end{array}\right]$
$\mathbf{G}\left[\begin{array}{ll}-9 & 12 \\ -9 & 10\end{array}\right]$

H $\left[\begin{array}{rr}-39 & 24 \\ 33 & 46\end{array}\right]$
J $\left[\begin{array}{rr}-9 & 12 \\ 33 & -46\end{array}\right]$

33 A rectangular poster is designed so that the text is arranged in a square with a top, left, and right margin of 1 inch and a bottom margin of 3 inches.


Jeremy determined the area of the margins.
Which equation could Jeremy use to justify the area of the margins?

A $\quad A=(x+3)(x+1)-x^{2}$
B $\quad A=(x+4)(x+2)-x^{2}$
C $\quad A=(x+4)(x+2)$
D $\quad A=(x+3)(x+1)$

34 Which of the following does NOT represent a linear equation?

F $\quad x y=5$
G $\quad y=-\frac{2}{5} x-3$
H $\quad 5 x-y=3$
J $y-3=\frac{3}{2}(x+1)$

35 The graph shows the number of calories Janis burns during an eighteen-minute workout.

Calories Janis Burned


Which statement could justify that Janis burns more calories at the beginning of her workout?

A The slope of the line segment between 0 and 4 minutes is half the slope of the line segment between 4 and 12 minutes.
B The slope of the line segment between 0 and 4 minutes is the greatest of the three slopes represented from 0 to 18 minutes.
C The slope of the line segment between 4 and 12 minutes is double the slope of the line segment between 12 and 18 minutes.

D The slope of the line segment between 0 and 4 minutes is triple the slope of the line segment between 12 and 18 minutes.

36 Which of the following graphs best represents the solution of the system of linear equations shown below?

$$
\begin{aligned}
& y=x+4 \\
& 3 x+y=-8
\end{aligned}
$$



G


H


37 The table shows the number of students on a basketball team and the number of free throws each student made during practice.

Free Throws

| Number <br> of <br> Students | 7 | 2 | 6 | 4 | 5 | 3 | 1 |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Number of <br> Free Throws <br> Per Student | 3 | 1 | 6 | 7 | 2 | 4 | 3 |

The coordinate grid below can be used to help answer the question.


Based on this information, which best describes the relationship between the number of students and the number of free throws each student made?

A Positive linear
B No relationship
C Negative linear
D Quadratic

38 Katie performed the steps shown below to solve a quadratic equation using the method of completing the square.

Step 1: $x^{2}+4 x-6=0$
Step 2: $x^{2}+4 x=6$
Which represents the next correct step Katie should perform?

F $\quad x^{2}+4 x+2=6-2$

G $\quad x^{2}+4 x+4=6-4$

H $\quad x^{2}+4 x+2=6+2$

J $x^{2}+4 x+4=6+4$

39 Tanya had solar panels installed on her house. The panels increase from an initial temperature of $55^{\circ}$ Fahrenheit to a maximum temperature of $130^{\circ}$ Fahrenheit in 45 seconds. The graph below shows the change in temperature of the solar panels over time.

Solar Panel Temperature Gauge


According to the graph, what was the rate of change of the temperature per second, in degrees Fahrenheit, of the solar panels from 0 seconds to 45 seconds?

A $\frac{9}{26}$
B $\frac{3}{5}$
C $\frac{5}{3}$
D $\frac{26}{9}$

40 Matrix $A$ shows the cost per pound of chicken and beef at three different grocery stores at the beginning of the month.

|  | Store 1 | Store 2 | Store 3 |
| :---: | :---: | :---: | :---: |
| Chicken | [2.59 | 3.59 | 3.19 |
| $A=$ Beef | 3.29 | 3.59 | 3.09 |

Matrix $B$ shows the prices one week later at the same three grocery stores.
$\left.\boldsymbol{B}=\begin{array}{r}\text { Store } \\ \mathbf{C h i c k e n} \\ \text { Beef }\end{array} \begin{array}{ccc}\mathbf{1} & \mathbf{2} & \mathbf{3} \\ 2.79 & 3.69 & 3.08 \\ 3.29 & 3.49 & 3.39\end{array}\right]$

Which of the following represents the difference in prices, in dollars, between Matrix $B$ and Matrix $A$ ?

F | Chicken |
| ---: |
| Beef |\(\left[\begin{array}{rrr}0.70 \& 0.00 \& -0.10 <br>

0.50 \& -0.20 \& 0.31\end{array}\right]\)

G | Chicken |
| ---: |
| Beef |\(\left[\begin{array}{rrr}0.20 \& 0.10 \& -0.11 <br>

0.00 \& -0.10 \& 0.30\end{array}\right]\)

H | Chicken |
| ---: |
| Beef |\(\left[\begin{array}{lll}0.20 \& 0.10 \& 0.11 <br>

0.00 \& 0.10 \& 0.30\end{array}\right]\)

J $\begin{array}{r}\text { Chicken } \\ \text { Beef }\end{array}\left[\begin{array}{lll}5.38 & 7.28 & 6.27 \\ 6.58 & 7.08 & 6.48\end{array}\right]$

41 The height of a triangular sail is represented as $\left(\frac{1}{2} x+9\right)$ feet and the base of the sail as $3 x$ feet. What is the area, in square feet, of the sail in terms of $x$ ?

A $\frac{3}{4} x^{2}+27 x$
B $\frac{3}{2} x^{2}+\frac{27}{2} x$
C $\frac{3}{2} x^{2}+27 x$
D $\frac{3}{4} x^{2}+\frac{27}{2} x$

42 Tim took a quiz that had 25 multiple-choice questions. He received 1 point for every correct answer and lost $\frac{1}{4}$ point for every incorrect answer. In order to pass the quiz, his total points need to be at least 17 . The inequality shown below can be used to calculate $x$, the number of answers Tim can get incorrect and still pass the quiz, if he attempts all the questions.

$$
(25-x)-\frac{1}{4} x \geq 17
$$

What is the MAXIMUM number of questions Tim can answer incorrectly and still pass the quiz?

F 6
G 7
H 10
J 19

43 Greg is going to solve the system of linear equations below.

First Equation: $8 x-2 y=8$
Second Equation: $3 x+3 y=9$
Which of the following would Greg NOT use to solve this system of equations?

A Solve the second equation for $y$ and then substitute the result into the first equation.

B Multiply the first and second equation by -6 to eliminate the $y$ variable.

C Solve the first equation for $y$ and then substitute the result into the second equation.
D Multiply the first equation by 3 and the second equation by 2 to eliminate the $y$ variable.

44 Which of the following equations describes a line that is perpendicular to $y=-\frac{2}{7} x+5$ and has the same $y$-intercept as $y=3 x-2$ ?

F $\quad y=-\frac{7}{2} x+5$
G $\quad y=\frac{7}{2} x+5$
H $\quad y=\frac{7}{2} x-2$
J $y=-\frac{7}{2} x-2$

45 Which of the following is a graph with a vertex at $(-3,2)$ ?

A $y=2-|x-3|$

B $\quad y=-2-|x+3|$

C $y=|x-3|-2$

D $y=|x+3|+2$

46 Christina had a certificate of deposit for two years. The bank credited interest to the certificate every three months. The following table shows the interest credited at three-month intervals.

Interest Credited to Deposit

| Number of <br> Three-Month <br> Intervals | Interest Credited <br> (dollars) |
| :---: | :---: |
| 1 | 10.00 |
| 2 | 10.10 |
| 3 | 10.20 |
| 4 | 10.30 |
| 5 | 10.40 |
| 6 | 10.50 |
| 7 | 10.60 |
| 8 | 10.70 |

Which of the following equations is closest to the line-of-best fit for the data?

$$
\begin{array}{ll}
\mathbf{F} & y=0.1 x+9.9 \\
\mathbf{G} & y=0.1 x-9.9 \\
\mathbf{H} & y=-0.1 x+9.9 \\
\mathbf{J} & y=-0.1 x-9.9
\end{array}
$$

47 Point $C$ is the midpoint of $\overline{Q S}$ and $\overline{R T}$ in the rectangle $Q R S T$ as shown below.


What are the coordinates of point $C$ ?
A $\left(-2,-\frac{3}{2}\right)$
B $\left(-\frac{3}{2}, 2\right)$
C $\left(-5,-\frac{5}{2}\right)$
D $\left(-\frac{5}{2},-5\right)$

48 Rosa used matrices to represent the students in four Algebra classes. Matrix $N$ represents the total number of students in each class. The ratio of the number of boys to the number of girls in the four classes is $\mathbf{2}$ to $\mathbf{1}$.

$$
\begin{gathered}
\text { Total } \\
\text { Students } \\
\boldsymbol{N}=\left[\begin{array}{ll}
24 & 30 \\
18 & 12
\end{array}\right]
\end{gathered}
$$

If $M=\left[\begin{array}{rr}16 & 20 \\ 12 & 8\end{array}\right]$ represents the number of boys in the classes, which scalar operation could Rosa use on matrix $N$ to prove that the ratio of boys to girls is $\mathbf{2}$ to 1 ?

F $\frac{2}{3} N$
G $\frac{3}{2} N$
H $2 N$

J $3 N$

49 Which of the following expressions shows the factors of $6 x^{3}-18 x^{2}-240 x$ ?

A $6 x\left(x^{2}-3 x+40\right)$

B $\quad x(6 x-48)(x-5)$

C $6 x(x-8)(x+5)$

D $6 x(x+8)(x-5)$

50 A certain insect has been recorded to reach a speed of $\mathbf{7 5}$ centimeters per second.
1 foot $\approx 30.28$ centimeters
Which is closest to the insect's fastest speed in feet per minute?

F 24 ft per min
G 38 ft per min
H 148 ft per min
J 2286 ft per min

51 What is the value of $y$ in the solution set of the system of linear equations shown below?

$$
\begin{aligned}
& y=-x+12 \\
& 4 x-2 y=36
\end{aligned}
$$

A 10
B 8
C 6
D 2

52 The vertex of the quadratic function shown on the grid below is at the origin.


If the graph of this function is translated 3 units to the right and 2 units up, which of the following best describes the domain of the resulting graph?

F The domain of the resulting graph is all real numbers.
G The domain of the resulting graph is all numbers greater than or equal to -2 .
H The domain of the resulting graph is all numbers from -4 to 10 .
J The domain of the resulting graph is all numbers greater than or equal to 2 .

53 The scatter plot below shows the amount of money the Football Booster Club raised for the last seven years.
Funds Raised


Which of the following best represents the line-of-best fit for the data shown?
A $y=500 x+1500$
B $y=250 x+750$
C $y=210 x+1470$
D $y=200 x+1000$

54 Which of the following is equivalent to the expression shown below?

$$
\frac{42 x^{2} y^{3} z^{5}}{3 x^{2} y z^{2}}
$$

F $12 y z^{3}$

G $14 y z^{2}$

H $14 y^{2} z^{3}$

J $16 x y^{3} z$

55 Which of the following trinomials CANNOT be factored over the set of rational numbers?

A $h^{2}+9 h+20$

B $\quad h^{2}-10 h+24$

C $h^{2}-12 h+21$

D $h^{2}+6 h-27$

56 The temperature at 6:00 A.m. was $58^{\circ}$ Fahrenheit. The temperature increased at a constant rate of $3^{\circ}$ Fahrenheit every hour until 10:00 A.m. The equation below models $t$ as a function of $h$ where $t$ is the temperature and $h$ is the number of hours.

$$
t=58+3 h
$$

Which set represents the range of this function?
F $\quad\{h: 0 \leq h \leq 4\}$
G $\quad\{h: 0 \leq h \leq 12\}$
H $\quad\{t: 58 \leq t \leq 70\}$
J $\{t: 0 \leq t \leq 70\}$

57 Harriet had a rectangular-shaped piece of construction paper. She cut a smaller rectangular shape out of the center. The dimensions, in terms of $x$, of the two rectangles are shown below.


What is the area of the shaded part of the construction paper after Harriet cut out the smaller rectangle?

A $(9 x+6)$ in. ${ }^{2}$

B $(9 x+5)$ in. ${ }^{2}$

C $(8 x+5)$ in. ${ }^{2}$

D $(7 x+6)$ in. ${ }^{2}$

58 The graph below shows how the depth of a submarine varied with time during a voyage.


Time (minutes)

Which line segment represents the LEAST rate of change in depth of the submarine?

F $r$
G $s$
H $t$
J $u$

59 Which of the following is equivalent to the expression shown below?

$$
\frac{6 x^{4}-6 x^{2}+7 x}{2 x^{2}}
$$

A $3 x^{2}-3+\frac{7}{2 x}$
B $\quad 3 x^{2}+\frac{7}{2} x-3$
C $3 x^{3}-3+\frac{7}{2 x^{2}}$
D $3 x^{3}-6 x-\frac{7}{2}$

60 Racine is going to buy flour, $f$, at $\$ 30.20$ per 50 -pound bag and sugar, $s$, at $\$ 14.99$ per 50-pound bag for her bakery.

Which inequality could Racine use to determine the number of bags of each she can buy without going over \$457.50?

F $\quad 30.20 f+14.99 s \leq 457.50$
G $\quad 30.20 f+14.99 s>457.50$
H $\quad 14.99 f+30.20 s>457.50$
J $14.99 f+30.20 s \leq 457.50$

61 The formula used to convert the temperature from $C$, degrees Celsius, to $F$, degrees Fahrenheit, is shown below.

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

Which statement best explains the change in the value of $F$ if the value of $C$ is decreased by 1 degree?

A The value of $F$ will decrease by $\frac{5}{9}$.
B The value of $F$ will decrease by $\frac{9}{5}$.
C The value of $F$ will decrease by $\frac{169}{9}$.
D The value of $F$ will decrease by $\frac{288}{95}$.

62 The area of a rectangular piece of paper is represented by the expression $\left(x^{2}-5 x-24\right)$ square inches.

Which of the following pairs of binomials could represent the dimensions, in inches, of the piece of paper?

F $\quad(x-8)$ and $(x+3)$
G $(x-12)$ and $(x+2)$
H $(x+8)$ and $(x-3)$
J $(x-3)$ and $(x-2)$

63 Reyna drew a parallelogram $A B C D$ as shown on the coordinate grid below.


If the graph of the equation $y=2 x-1$ contains $\overline{A B}$, which of the following equations contains $\overline{C D}$ ?

A $\quad y=2 x-9$

B $\quad y=2 x-11$

C $\quad y=-\frac{1}{2} x-9$
D $\quad y=-\frac{1}{2} x-11$

64 The table below shows the relationship between the air temperature, in degrees Celsius, compared to the skin temperature, in degrees Celsius, of a seal.

Air and Seal Skin Temperatures

| Air Temperature <br> $\left({ }^{\circ} \mathrm{C}\right)$ | Seal Skin <br> Temperature $\left({ }^{\circ} \mathrm{C}\right)$ |
| :---: | :---: |
| -7 | 17 |
| -2 | 15 |
| -1 | 19 |
| 2 | 22 |
| 11 | 31 |
| 12 | 28 |
| 18 | 29 |

Which is closest to the line-of-best fit for the data in the table?

F $\quad y=\frac{5}{9} x+18$
G $y=\frac{16}{25} x+20$
H $\quad y=\frac{11}{19} x+21$
J $y=\frac{7}{9} x+22$

65 Louis correctly graphed the solution of an inequality on the coordinate grid below.


Which inequality best represents Louis's graph?
A $3 x+5 y \leq-5$
B $3 x+5 y>15$
C $5 x-3 y>-5$
D $5 x-3 y \leq 15$

## End of Test

