TEACHER READS:
Read the question to yourself and select the best answer(s).

A square has a side length of \((2x + 4)\) inches.
Which expressions represent the area, in square inches, of this square? Select all that apply.

A. \(8x + 16\)
B. \(4x^2 + 16\)
C. \((2x + 4)^2\)
D. \(2(x + 2)^2\)
E. \(4(x + 2)^2\)
F. \(4x^2 + 16x + 16\)

TEACHER READS:
Read the question to yourself and select the best answer.

Which of these expressions is equivalent to \(\frac{1}{16} - 2\cdot \frac{8}{2} - 15^2?\)

A. \((a^4 - 3)(a^4 + 5)\)
B. \((a^4 + 3)(a^4 - 5)\)
C. \((a^8 - 3)(a^8 + 5)\)
D. \((a^8 + 3)(a^8 - 5)\)

TEACHER READS:
Read the question to yourself and select the best answer.

A salesman makes both a base salary and also a commission, which is a percentage of what he sells. Each month, if his sales total \(s\) dollars, he makes a total of \(2000 + 0.1s\) dollars. What does \(2000\) represent?

A. his monthly base salary in dollars
B. the amount of his monthly sales in dollars
C. his total monthly pay in dollars
D. his monthly commission in dollars

TEACHER READS:
Read the question to yourself and select the best answer.

Select the expression that is equivalent to \(8x^3 + 512?\)

A. \(8(x + 4)(x^2 - 4x + 16)\)
B. \(8(x + 4)(x^2 + 4x + 16)\)
C. \((2x + 8)(4x^2 - 16x + 16)\)
D. \((2x + 8)(4x^2 - 32x + 64)\)
5 TEACHER READS:
Read the question to yourself and select the best answer.

Factor:
\[ x^3 - 2x^2 - 8x \]
A. \[ x(x - 4)(x + 2) \]
B. \[ (x - 4)(x + 2) \]
C. \[ (x - 4)(x^2 + 2x) \]
D. \[ x(x + 4)(x - 2) \]

Master ID: 32890 Revision: 1
Correct: A
Standards:
CCSS.MA.9-12.A-SSE.2

6 TEACHER READS:
Read the question to yourself and select the best answer.

Which of the following shows \( 15x^2 + 17x - 4 \) factored completely?
A. \( (15x - 4)(x + 1) \)
B. \( (15x - 2)(x + 2) \)
C. \( (5x + 4)(3x + 1) \)
D. \( (5x - 1)(3x + 4) \)

Master ID: 23079 Revision: 1
Correct: D
Standards:
CCSS.MA.9-12.A-SSE.2

7 TEACHER READS:
Read the question to yourself and select the best answer(s).

Jake’s Car Depot charges $24 per day to rent a car as well as $0.18 per mile driven. Assume that \( y \) represents the total daily cost to rent a car and \( x \) represents the number of miles driven. Which of the following equations can be used to calculate the total daily cost of renting a car? Select all that apply.

A. \[ y - 0.18 = 24x \]
B. \[ y + 0.18x = 24x \]
C. \[ y = 0.18x + 24 \]
D. \[ y - 24 = 0.18x \]
E. \[ y = 24x + 0.18 \]
F. \[ y = 24.18x \]

Master ID: 433657 Revision: 1
Correct: CD
Standards:
CCSS.MA.9-12.A-CED.2
8. **TEACHER READS:**

Read the question to yourself and select the best answer.

On Saturday, the Anderson Family had dinner at a restaurant. They ordered 2 pizzas and 4 cheeseburgers for $31.50. The following weekend, the Anderson Family had dinner at the same restaurant where they ordered 3 pizzas and 2 cheeseburgers for $33.25. Which system of equations can be used to determine the cost of one pizza \( p \) and one cheeseburger \( c \)?

A. \( 2c + 4p = 31.50 \)
   \( 3c + 2p = 33.25 \)

B. \( 2p + 4c = 31.50 \)
   \( 3p + 2c = 33.25 \)

C. \( 2c \times 4p = 31.50 \)
   \( 3c \times 2p = 33.25 \)

D. \( 2p \times 4c = 31.50 \)
   \( 3p \times 2c = 33.25 \)

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9. **TEACHER READS:**

Read the question to yourself and select the best answer.

Simone needs to graph the equation \( y = 2x - 5 \). She says that she should start graphing at the \( y \)-intercept \((0, -5)\) and then draw a line with a slope of 2. Is Simone correct?

A. Yes, Simone is correct.
B. No, Simone needs to start graphing at the \( x \)-intercept \((-5, 0)\).
C. No, Simone needs to start graphing at the \( y \)-intercept \((0, 2)\) and then draw a line with a slope of \(-5\).
D. No, Simone needs to start graphing at the \( x \)-intercept \((2, 0)\) and then draw a line with a slope of \(-5\).

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Master ID: 176182 Revision: 1
Correct: B
Standards: CCSS.MA.9-12.A-CED.3

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Master ID: 170706 Revision: 1
Correct: A
Standards: CCSS.MA.9-12.A-CED.2
Read the question to yourself and select the best answer.

The graph below shows the relationship between the side length in feet of a square piece of carpet and its price in dollars. If \( s \) is the side length and \( p \) is the price, which of these equations does the graph represent?

- A. \( p = s^2 \)
- B. \( p = 2.5s^2 \)
- C. \( p = 5s \)
- D. \( p = 10s \)

Master ID: 90923 Revision: 1
Correct: B
Standards:
CCSS.MA.9-12.A-CED.2

Read the question to yourself and select the best answer.

The graph below shows the relationship between the distance in inches on a map and the actual distance in miles. If \( m \) is the distance on the map and \( d \) is the actual distance, which of these equations does the graph represent?

- A. \( d = \frac{3}{5}m \)
- B. \( d = m + \frac{3}{5} \)
- C. \( d = m + \frac{5}{3} \)
- D. \( d = \frac{5}{3}m \)

Master ID: 89721 Revision: 1
Correct: D
Standards:
CCSS.MA.9-12.A-CED.2
12 TEACHER READS:
Read the question to yourself and select the best answer.

Trinity claims that the graph of the function $g(x) = f(x - k)$ is located $|k|$ units to the right of the graph of $f(x)$.

Which statement best describes Trinity’s claim?

A. The claim is never true, since the graph of $f(x)$ is shifted up or down by $|k|$ units.
B. The claim is always true, since any value of $k$ will shift the graph of $f(x)$ to the right.
C. The claim is only true for $k \leq 0$, since positive values of $k$ will shift the graph of $f(x)$ to the left.
D. The claim is only true for $k \geq 0$, since negative values of $k$ will shift the graph of $f(x)$ to the left.

13 TEACHER READS:
Read the question to yourself and select the best answer.

The table below shows the amount of water that is in a bathtub that is being filled.

<table>
<thead>
<tr>
<th>Minutes</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gallons of Water</td>
<td>12</td>
<td>17</td>
<td>22</td>
<td>27</td>
</tr>
</tbody>
</table>

Which of the following functions could model the amount of gallons of water, $f(x)$, that the bathtub will contain after $x$ minutes of being filled?

A. $f(x) = 5x + 7$
B. $f(x) = 5x + 12$
C. $f(x) = 7x + 5$
D. $f(x) = 12x + 5$
Read the question to yourself and select the best answer.

Which expression represents $f^{-1}(x)$ if $f(x) = x + 2$?

A. $2 + x$
B. $2 - x$
C. $-x - 2$
D. $x - 2$

Master ID: 22611 Revision: 1
Correct: D
Standards:
- CCSS.MA.9-12.F-BF.4
- CCSS.MA.9-12.F-BF.4.a
Directions: Answer the following question(s).

TEACHER READS:
A store manager records the price and number of TVs sold in a store. The data is shown in the scatter plot below.

Which of the following scatter plots shows a line of best-fit for these data?

A. 

B. 

C. 

D. 

[Scatter plots A, B, C, D are shown.]
The correlation of SAT scores and grade point averages (GPAs) for a random sample of high school students is represented by the scatterplot below. The approximate line of best fit is given by the equation $y = 40x - 1800$. Based on this trend, which of the following best predicts the SAT score for a high school student with a GPA of 95?

A. 1650  
B. 1800  
C. 1980  
D. 2150

Consider the two functions $f(x)$ and $g(x)$. Function $f(x)$ is represented by the graph below, and $g(x) = -4x^2 + 1$.

Which of the following statements correctly compares the two functions $f(x)$ and $g(x)$? Select all that apply.

A. The graphs of both functions cross the $x$–axis at 0.  
B. The graphs of both functions cross the $y$–axis at 1.  
C. They both have a minimum value of 1.  
D. They both have a maximum value of 1.  
E. Function $f(x)$ has a minimum value of 1, and function $g(x)$ has a maximum value of 1.
Read the question to yourself and select the best answer.

Select the equation that represents the graph above.

A. $y = \sqrt{x} + 2$
B. $y = \sqrt{x} - 2$
C. $y = \sqrt{x} + 2$
D. $y = x + 2$

Standards:
CCSS.MA.9-12.F-IF.7.b
Read the question to yourself and select the best answer(s).

Jane orders cheese pizzas from a company that charges $8.00 per pizza. Jane has only $45.00 to spend on pizza. Jane's cost, in dollars, is a function of the number of pizzas she orders.

Which of the following statements describe the domain and range of this function? Select all that apply.

A. The domain is the set of all integers from 0 to 5.
B. The domain is the set of all real numbers from 0 to 5.
C. The range is the set of all integers from 0 to 40.
D. The range is the set of all real numbers from 0 to 40.
E. The range is the set of all multiples of 8 from 0 to 40.
Which graph represents the equation $y = 2x + 4$? Note: The scale for both axes on all of the graphs is 1.

A. 

B. 

C. 

D. 

Master ID: 346016 Revision: 1
Correct: A
Standards: CCSS.MA.9-12.F-IF.7.a
Directions: Answer the following question(s).
Which of the following graphs has a y–intercept at 2? Select all that apply.

A. 

B. 

C. 

D. 

E. 

F. 

Illustration: Graphs A, D, and F have a y–intercept at 2.
Directions: Answer the following question(s).

Master ID: 287136 Revision: 1
Correct: **BD**
Standards:
   - CCSS.MA.9-12.F-IF.7.a
Directions: Answer the following question(s).

22 TEACHER READS:
Which of the following piecewise graphs are given by \( y = \frac{x}{2} + 1 \) on the interval \( 4 < x < 6 \)? Select all that apply.

A.

B.

C.

D.

E.
23 TEACHER READS:
Read the question to yourself and select the best answer.

Which of the following graphs shows a function with a domain of $2 \leq x < 5$? Select all that apply.

A. ![Graph A]
B. ![Graph B]
C. ![Graph C]
D. ![Graph D]
E. ![Graph E]
Read the question to yourself and select the best answer.

Which of the following graphs shows a function with domain $1 \leq x < 4$? Select all that apply.

A.

B.

C.

D. 

TEACHER READS:

The graph below shows a relationship between $x$ and $y$.

Which of the following statements about the graph are true? Select all that apply.

A. There is a relative maximum at $x = 1$.
B. There is a relative minimum at $x = 3$.
C. There is a relative maximum at $x = 4$.
D. There is a relative maximum at $x = 5$.
E. There is a relative minimum at $x = 6$.
F. There is a relative minimum at $x = 7$. 

Standards:

CCSS.MA.9-12.F-IF.4
26 TEACHER READS:
Read the question to yourself and select the best answer.

Which best represents the graph of \( y = x^2 + 5 \)?

A.  
B.  
C.  
D.  

Standards:
CCSS.MA.9-12.F-IF.7.a

27 TEACHER READS:
Read the question to yourself and select the best answer.

How many times does the graph of \( y = x^2 - 16 \) intersect the x-axis?

A. none  
B. one  
C. two  
D. three
30 TEACHER READS:
Read the question to yourself and select the best answer.

What is the \(y\)-intercept of \(4x - y = -6\)?

A. \((0, 4)\)
B. \((0, 6)\)
C. \((0, -6)\)
D. \((0, -4)\)

31 TEACHER READS:
Read the question to yourself and select the best answer.

How many times does the graph of \(y = 9x^2 - 36x + 4\) intersect the \(x\)-axis?

A. none
B. one
C. two
D. three
32 TEACHER READS:

Read the question to yourself and select the best answer.

What are the $x$–intercepts of the graph of $y = 15x^2 - 2x - 8$?

A. $\frac{8}{3}$ and $-\frac{1}{5}$
B. $-\frac{8}{3}$ and $\frac{1}{5}$
C. $\frac{2}{3}$ and $-\frac{4}{5}$
D. $-\frac{2}{3}$ and $\frac{4}{5}$

Master ID: 36985 Revision: 1
Correct: D
Standards: CCSS.MA.9-12.F-IF.7.a

33 TEACHER READS:

Read the question to yourself and select the best answer.

Which of the following quadratic equations cannot be solved by factoring?

A. $x^2 - 12x + 27 = 0$
B. $x^2 - 10x - 22 = 2$
C. $x^2 - 8x = 0$
D. $x^2 - 6x + 7 = 0$

Master ID: 25096 Revision: 1
Correct: D
Standards: CCSS.MA.9-12.F-IF.7.a

34 TEACHER READS:

Read the question to yourself and select the best answer.

Find the $x$–intercepts of the graph of $y = 5x^2 + 4x - 1$.

A. $\frac{1}{5}$ and $-1$
B. $1$ and $-\frac{1}{5}$
C. $-1$ and $\frac{4}{5}$
D. $-\frac{4}{5}$ and $1$

Master ID: 20784 Revision: 1
Correct: A
Standards: CCSS.MA.9-12.F-IF.7.a
Determine the domain of the linear function whose graph is shown below:

A. \( \{ y \mid -4 \leq x \leq 4 \} \)
B. \( \{ y \mid -6 \leq x \leq 2 \} \)
C. \( \{ y \mid -2 \leq x \leq 6 \} \)
D. all real numbers

What is the value of \( x \) in the equation \( 2x^2 + 6x = -5 \)?

A. \( \frac{-3 \pm i}{2} \)
B. \( \frac{-3 \pm \sqrt{19}}{2} \)
C. \( \frac{-6 \pm \sqrt{34}}{4} \)
D. \( \frac{-6 \pm \sqrt{46}}{4} \)

Select an expression that is equivalent to \( \frac{4}{5^3} \cdot \frac{1}{5^3} \).
Which expression is equal to $9x^{-15}$?

A. $-6x$
B. $\frac{-15}{9x}$
C. $\frac{9}{x^{15}}$
D. $\frac{9}{15x}$

What are the solutions for the given equation?

$x^2 - 12x = -5$

A. $x = -6 \pm \sqrt{41}$
B. $x = -6 \pm \sqrt{5}$
C. $x = 6 \pm \sqrt{7}$
D. $x = 6 \pm \sqrt{31}$
TEACHER READS:
Read the question to yourself and select the best answer.

Adam graphed a polynomial with zeros at $x = -1$, $x = 2$ and $x = 5$. Which of the following graphs did he draw?

A. ![Graph A]

B. ![Graph B]

C. ![Graph C]

D. ![Graph D]
41 TEACHER READS:
Read the question to yourself and select the best answer.

Which of these polynomial functions is graphed below?

- \( y = -x^3 + 3 \)
- \( y = -x^3 + 27 \)
- \( y = x^3 - 27 \)
- \( y = x^3 - 3 \)

A. \( y = -x^3 + 3 \)
B. \( y = -x^3 + 27 \)
C. \( y = x^3 - 27 \)
D. \( y = x^3 - 3 \)

Master ID: 88596 Revision: 1
Correct: B
Standards:
- CCSS.MA.9-12.APR.URB
- CCSS.MA.9-12.A-APR.3

42 TEACHER READS:
Read the question to yourself and select the best answer.

The height, \( h \), of a ball that is thrown straight upward from an initial position 3 feet off the ground with initial velocity of 90 feet per second is given by the equation \( h = 3 + 90t - 16t^2 \) where \( t \) = time in seconds. After how many seconds will the ball be 84 feet above the ground?

A. 1.125 and 4.5 seconds
B. 1.118 and 4.694 seconds
C. 5.658 seconds
D. 6.440 seconds

Master ID: 43509 Revision: 1
Correct: A
Standards:
- CCSS.MA.9-12.A-REI.4.b

43 TEACHER READS:
Read the question to yourself and select the best answer.

The height, \( h \), of an object that is projected straight downward from a ledge 500 feet above the ground with initial velocity 10 feet per second is given by the equation \( h = 500 - 10t - 16t^2 \) where \( t \) = time in seconds. After how many seconds will the object be 100 feet above the ground?

A. 2.21 seconds
B. 3.85 seconds
C. 4.70 seconds
D. 40 seconds

Master ID: 43508 Revision: 1
Correct: C
Standards:
- CCSS.MA.9-12.A-REI.4.b
44 TEACHER READS:
Read the question to yourself and select the best answer.
An object that is projected straight downward with an initial velocity $v$ feet per second travels a distance $s = vt + 16t^2$ where $t$ = time in seconds. If a coin dropped from a window 144 feet above the ground has an initial velocity of 0 feet per second, in how many seconds will the coin reach the ground?
A. 12 seconds
B. 9 seconds
C. 4 seconds
D. 3 seconds

45 TEACHER READS:
Read the question to yourself and select the best answer.
Which is one of the solutions to the equation $-2x^2 + 6x + 1 = 0$?
A. $-6 + 2\sqrt{11}$
B. $\frac{3}{2} + \sqrt{11}$
C. $\frac{-3 + \sqrt{11}}{2}$
D. $\frac{3 - \sqrt{11}}{2}$