1. The Yellow Cab Company charges $4.25 for the first half mile and then by the mile as shown in the table below.

**YELLOW CAB COMPANY**

<table>
<thead>
<tr>
<th>Miles (m) (after the first half mile)</th>
<th>Total Cost (t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>7.25</td>
</tr>
<tr>
<td>2</td>
<td>10.25</td>
</tr>
<tr>
<td>3</td>
<td>13.25</td>
</tr>
<tr>
<td>4</td>
<td>16.25</td>
</tr>
<tr>
<td>5</td>
<td>19.25</td>
</tr>
</tbody>
</table>

Which equation represents \( c \), the cost per mile as a function of \( t \), the total cost, where \( m \) is the number of miles driven after the first half mile?

A. \( c = \frac{t + 4.25}{m} \)

B. \( c = \frac{t - 4.25}{m} \)

C. \( c = \frac{m - 4.25}{t} \)

D. \( c = \frac{m + 4.25}{t} \)

2. Tri-Americas Airlines charge $280 for a one way ticket from Miami, FL to Lima, Peru and $25 per bag of luggage checked on the plane. The function below can be used to determine \( f(n) \), the ticket price and the luggage surcharge, where \( n \) represents the number of bags of luggage checked.

\[
f(n) = 280 + 25n
\]

If the total cost of a round trip cost $660, how many bags of luggage were checked onto the plane each way?

A. 2

B. 4

C. 6

D. 8
3. The Palm Beach Sentinel newspaper showed a graph indicating the average monthly rainfall as shown below.

Based on the graph, which of the following best describes the range of the average monthly rainfall?

A. \( 0.5 \leq y \leq 8 \)
B. \( 0.5 \geq y \leq 8 \)
C. \( 0.5 \geq x \leq 8 \)
D. \( 0.5 \geq x \geq 8 \)

4. The set of ordered pairs shown below defines a relation.

\[ \{(-4, 2), (3, 4), (2, 9), (-3, 3), (4, -10)\} \]

What is the value of the greatest element in the range of this relation?

A. \(-10\)
B. \(-4\)
C. \(4\)
D. \(9\)

5. Ken is driving from his house to Dolphins Stadium for a Monday Night football game. His arrival time depends on the traffic. If traffic is light, he will travel at an average speed of 60 miles per hour and arrive 2 hours early. If traffic is heavy, he will travel at an average speed of 30 miles per hour and arrive at kickoff. The equation below can be used to model this situation, where \( t \) represents Ken’s driving time, in hours.

\[ 60(t - 2) = 30t \]

What is the distance, in miles, from Ken’s house to Dolphin Stadium?

6. The formula to find simple interest is \( I = prt \).

Where:

\[ I = \text{Interest} \]
\[ p = \text{principal} \]
\[ r = \text{rate} \]
\[ t = \text{time} \]

Which of the following shows the simple interest formula solved for \( r \)?

A. \( r = \frac{Ipt}{r} \)
B. \( r = \frac{pt}{I} \)
C. \( r = \frac{I}{pt} \)
D. \( r = pt - I \)
7. Which graph shows the solutions to the inequality shown below?

\[ 3x \leq 5x + 8 \]

A. 
B. 
C. 
D. 

8. Palm Beach High School is renting a banquet room at the Breakers hotel for their homecoming dance. The hotel charges $1500 for 3 hours and $250 for each additional half hour. If the junior class raised $2245, what is the maximum number of hours they can rent the banquet room?

A. 3 and \( \frac{1}{2} \) hours
B. 4 hours
C. 4 and \( \frac{1}{2} \) hours
D. 5 hours

9. The Great American roller coaster has a climb of 120 feet before its first main drop. Below is a diagram of the coaster as it leaves the gatehouse towards the first drop.

What is the slope of the line between the two points?

\[ \frac{160 - 20}{180 - 20} = \frac{140}{160} = \frac{7}{8} \]
10. On the coordinate grid below, line \( l \) is parallel to \( AB \).

What is the slope of line \( l \) ?

11. Lori graphed the line as shown on the coordinate plane below.

What is the y-intercept of the line?

12. A landscaping company placed two orders with a nursery. The first order was for 13 bushes and 4 trees, and totaled $487. The second order was for 6 bushes and 2 trees, and totaled $232. What was the cost of one tree?

A. $23  
B. $28.76  
C. $37.46  
D. $47
Algebra EOC Review
Spring Break Packet

Name: ______________________________________ Date: ____/____/____ Period: _______

13. The expression \((a^3 b^4 c^8)^2\) is equivalent to which of the following?
   A. \(a^5 b^6 c^{10}\)
   B. \(a^6 b^8 c^{16}\)
   C. \(abc^{17}\)
   D. \(abc^{30}\)

14. Staci would like to paint her bathroom wall as shown below.

   \[
   \text{(2x - 1) feet} \\
   \text{(3x - 4) feet}
   \]

   Which of the following would represent the area of the bathroom?
   A. \((6x^2 - 11x - 4)\)
   B. \((6x^2 - 11x + 4)\)
   C. \((6x^2 + 11x + 4)\)
   D. \((6x^2 + 11x - 4)\)

15. If \(x \neq -\frac{11}{3}\), which of the following shows the expression below in simplest form?

   \[
   \frac{121 - 9k^2}{11 + 3k}
   \]
   A. \(11 + 3k\)
   B. \(11 - 3k\)
   C. \(11 + 6k\)
   D. \(11 - 6k\)

16. Mira needs to simplify the expression below for her algebra test before she substitutes values for \(a\) and \(b\).

   \[
   \frac{a^3 b^5 + a^4 b^6}{a^2 b^3}
   \]

   If \(a \neq 0\) and \(b \neq 0\), which of the following is a simplified version of the expression above?
   A. \(ab^2 + a^2 b^3\)
   B. \(a^5 b^8 + a^6 b^9\)
   C. \(a^3 b^5\)
   D. \(a^6 b^{10}\)
17. Matthew created a scale model of the Tower Bridge in London as shown below.

What is the value, in inches, of \( x \)?

A. 6
B. 9
C. 12
D. 15

18. Judy simplified the expression below for a homework assignment.

\[ \sqrt{28} + 3\sqrt{2a} + \sqrt{7} \]

If July simplified the expression correctly, which of the following is her answer?

A. \( 5\sqrt{7} + 3\sqrt{2a} \)
B. \( 3\sqrt{7} + 3\sqrt{2a} \)
C. \( 8\sqrt{9a} \)
D. \( 8\sqrt{14a} \)

19. A model rocket is launched from ground level into the air. Its height \( y \), in feet, after \( x \) seconds can be represented by the equation \( y = 160x - 5x^2 \). What is the total elapsed time, in seconds, from the time the rocket is launched until it reaches ground level again?

20. The universal set contains only sets \( A \), \( B \), and \( C \). These sets are related as shown in the Venn diagram below.

Which set represents \((A \cap \sim B) \cap (\sim C \cup B)\)?

A. \( \{n\} \)
B. \( \{w, x, y, z\} \)
C. \( \{m, n, o, p, q, t, w, x, y, z\} \)
D. \( \{e, f, m, n, o, r, s, t, u, v, w, x, y, z\} \)
21. The set $A$ represents several American car companies.

   $A = \{\text{Ford, Chevrolet, Saturn, Jeep}\}$

The set $B$ represents several foreign car companies.

   $B = \{\text{Toyota, Honda, Mercedes}\}$

What is the total number of elements in the set $A \times B$?

A. 7  
B. 9  
C. 12  
D. 20

22. What is the $y$-intercept of the equation $y = -x^2 - 4x + 2$?

   A. $-4$  
   B. 4  
   C. $-2$  
   D. 2
23. Ava stopped at the school supply store where pencils sold for $0.50 and highlighters sold for $1.25. Ava had $2.50 to spend on supplies. The equation below can be used to find out how many of each type of supply Ava could buy, were \( p \) is the number of pencils and \( h \) is the number of highlighters.

\[ 0.50p + 1.25h = 2.50 \]

Which of the following is a graph of this equation?
24. Alberto needs to simplify the expression below for his algebra homework.

\[ \frac{h^5 k^5 + h^8 k^2}{h^3 k^2} \]

If \( h \neq 0 \) and \( k \neq 0 \), which of the following is a simplified version of the expression above?

A. \( h^2 k^3 + h^5 \)
B. \( h^8 k^8 + h^{10} k^4 \)
C. \( h^{10} + k^5 \)
D. \( h^{-2} k \)

25. If \( x \neq 5 \), which of the following shows the expression below in simplest form?

\[ \frac{3x^2 - 75}{x - 5} \]

A. \( 3(x - 25) \)
B. \( \frac{3(x - 25)}{x - 5} \)
C. \( 3(x - 5) \)
D. \( 3(x + 5) \)