Question 1 of 20

Solve the inequality for \( x \).

\[ 6x - 35 \geq -5(3 - 2x) \]

Simplify your answer as much as possible.

Question 2 of 20

For each of the following equations, determine whether \( y \) is a function of \( x \).

- \( y = 6x^2 - 1 \)  
  - Function  
  - Not a function

- \( x = 7y^2 + 5 \)  
  - Function  
  - Not a function

- \( 3x - y = 9 \)  
  - Function  
  - Not a function

- \( y^2 = 9x \)  
  - Function  
  - Not a function
Question 3 of 20

The graph of the relation $G$ is shown below.

![Graph of the relation $G$]

Give the domain and range of $G$.
Write your answers using set notation.

Question 4 of 20

Calculate the distance between the points $N = (-3, 2)$ and $C = (2, -4)$ in the coordinate plane.

Give an exact answer (not a decimal approximation).
Question 5 of 20

Salma launches a rocket straight up into the air. The table below gives the height $H(t)$ of the rocket (in meters) at a few times $t$ (in seconds) during its flight.

<table>
<thead>
<tr>
<th>Time $t$ (seconds)</th>
<th>Height $H(t)$ (meters)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2.2</td>
<td>110</td>
</tr>
<tr>
<td>6.6</td>
<td>198</td>
</tr>
<tr>
<td>8.8</td>
<td>44</td>
</tr>
<tr>
<td>13.2</td>
<td>0</td>
</tr>
</tbody>
</table>

(a) Find the average rate of change for the height from 0 seconds to 2.2 seconds.

_____ meters per second

(b) Find the average rate of change for the height from 6.6 seconds to 13.2 seconds.

_____ meters per second

Question 6 of 20

Graph the solution to the inequality on the number line.

$$|5y - 5| \leq 10$$

Question 7 of 20

Solve for $u$.

$$-5|u + 5| = -40$$
Question 8 of 20

For each graph below, state whether it represents a function.

<table>
<thead>
<tr>
<th>Function?</th>
<th>Graph 1</th>
<th>Graph 2</th>
<th>Graph 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Yes</td>
<td>[ ] No</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Function?</th>
<th>Graph 4</th>
<th>Graph 5</th>
<th>Graph 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>[ ] Yes</td>
<td>[ ] No</td>
<td>[ ] Yes</td>
<td>[ ] No</td>
</tr>
</tbody>
</table>

Question 9 of 20

Find an equation of the circle whose diameter has endpoints \((-3, 6)\) and \((1, -2)\).

Question 10 of 20

Solve the inequality for \(u\).

\[-\frac{3}{7}u + 14 \geq 11\]

Simplify your answer as much as possible.
Question 11 of 20

The graph of a quadratic function with vertex \((4, 1)\) is shown in the figure below. Find the domain and the range.

Write the domain and range using interval notation.

\[
\text{domain} = \underline{\hspace{2cm}} \\
\text{range} = \underline{\hspace{2cm}}
\]

Question 12 of 20

Fill in the blank to make the expression a perfect square.

\[y^2 + 14y + \underline{\hspace{1cm}}\]

Question 13 of 20

Solve for \(x\), where \(x\) is a real number.

\[\sqrt{2x + 15} = \sqrt{4x + 7}\]

Question 14 of 20

Find an equation of the circle that has center \((6, -5)\) and passes through \((2, 5)\).
For each of the following, determine whether the equation defines $y$ as a function of $x$.

<table>
<thead>
<tr>
<th>Equation</th>
<th>Function</th>
<th>Not a function</th>
</tr>
</thead>
<tbody>
<tr>
<td>$2x = y^3$</td>
<td>Function</td>
<td>Not a function</td>
</tr>
<tr>
<td>$9 =</td>
<td>y</td>
<td>+ x^2$</td>
</tr>
<tr>
<td>$36 + y^2 = x^2$</td>
<td>Function</td>
<td>Not a function</td>
</tr>
<tr>
<td>$y = 6</td>
<td>x</td>
<td>- 3$</td>
</tr>
</tbody>
</table>
Question 16 of 20

The entire graph of the function $f$ is shown in the figure below. Write the domain and range of $f$ as intervals or unions of intervals.

Question 17 of 20

The function $f$ is defined by $f(x) = \frac{5 + x}{6 + 2x}$.

Find $f(2x)$.

Question 18 of 20

Give the equation of the circle centered at the origin and passing through the point $(-6, 0)$. 
Question 19 of 20

Graph the line $y = 3$.

Question 20 of 20

The credit remaining on a phone card (in dollars) is a linear function of the total calling time made with the card (in minutes). The remaining credit after 38 minutes of calls is $18.92$, and the remaining credit after 65 minutes of calls is $14.60$. What is the remaining credit after 73 minutes of calls?
Question 1 of 20

\[ x \leq -5 \]

Question 2 of 20

<table>
<thead>
<tr>
<th>Equation</th>
<th>Function</th>
<th>Not a function</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y = 6x - 1 )</td>
<td>Function</td>
<td>Not a function</td>
</tr>
<tr>
<td>( x = 7y^2 + 5 )</td>
<td>Function</td>
<td>Not a function</td>
</tr>
<tr>
<td>( 3x - y = 9 )</td>
<td>Function</td>
<td>Not a function</td>
</tr>
<tr>
<td>( y^2 = 9x )</td>
<td>Function</td>
<td>Not a function</td>
</tr>
</tbody>
</table>

Question 3 of 20

\[
\text{domain} = \{3, \ -3, \ 0\} \\
\text{range} = \{3, \ 4, \ -3\}
\]

Question 4 of 20

Distance: \( \sqrt{61} \)

Question 5 of 20
(a) Find the average rate of change for the height from 0 seconds to 2.2 seconds.

50 meters per second

(b) Find the average rate of change for the height from 6.6 seconds to 13.2 seconds.

−30 meters per second
Question 9 of 20

\[(x + 1)^2 + (y - 2)^2 = 20\]

Question 10 of 20

\[u \leq 7\]

Question 11 of 20

domain: \((-\infty, \infty)\)

range: \((-\infty, 1]\)

Question 12 of 20
\( y^2 + 14y + 49 \)

Question 13 of 20

\( x = 4 \)

Question 14 of 20

\((x - 6)^2 + (y + 5)^2 = 116\)

Question 15 of 20

<table>
<thead>
<tr>
<th>Expression</th>
<th>Function</th>
<th>Not a function</th>
</tr>
</thead>
<tbody>
<tr>
<td>( 2x = \frac{3}{y} )</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>( 9 =</td>
<td>y</td>
<td>+ x^2 )</td>
</tr>
<tr>
<td>( 36 + y^2 = x^2 )</td>
<td>✗</td>
<td>✗</td>
</tr>
<tr>
<td>( y = 6 \left</td>
<td>x \right</td>
<td>- 3 )</td>
</tr>
</tbody>
</table>
Question 16 of 20

domain = \((-2, -1) \cup (1, 5)\)
range = \((-5, 4)\)

Question 17 of 20

\[ f(2x) = \frac{5 + 2x}{6 + 4x} \]

Question 18 of 20

\[ x^2 + y^2 = 36 \]

Question 19 of 20

![Graph](image)

Question 20 of 20

$13.32$