1. Given \( f(x) = x^2 \), find \( f(x + h) \).

2. What are the exact values of (a) \( \sin \pi/6 \) and (b) \( \cos \pi/6 \)?

| \[ \frac{1}{x + h} - \frac{1}{x} \] |

3. Simplify:

4. Graph the function

\[
y = \sin(x - \frac{\pi}{4})
\]

5. Graph the set on a number line:
\[
\{ x \in \mathbb{R} : |x - 3| < 4 \}
\]
Note that \( \mathbb{R} \) denotes the set of real numbers.

6. Graph the circle whose equation is given by
\[
x^2 + y^2 + 6x - 6y + 2 = 0.
\]
Indicate the coordinates of the center of the circle and the length of the radius of the circle.
<table>
<thead>
<tr>
<th>Question</th>
<th>Description</th>
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<tbody>
<tr>
<td>7.</td>
<td>Solve for ( x ): ( \log(1 + x) + \log(2 + x) = 2 )</td>
</tr>
<tr>
<td>8.</td>
<td>Triangle ABC is an equilateral triangle and segment ED is parallel to segment AB as shown in the figure below. Express ( x ) in terms of ( h ).</td>
</tr>
<tr>
<td>9.</td>
<td>Find all pairs ((x, y)) that simultaneously satisfy the following two equations: ( x^2 + y^2 = 9 ) and ( y - x = 1 ). Graph the two equations, and show the points of intersection of the graphs.</td>
</tr>
<tr>
<td>10.</td>
<td>Prove the following trigonometric identity: ( \frac{\cos^3(x) + \sin^3(x)}{\cos(x) + \sin(x)} = 1 - \sin(x)\cos(x) )</td>
</tr>
<tr>
<td>11.</td>
<td>Write an algebraic equation that expresses the following statement: the sum of the distance between point ((x, y)) and point ((1, 2)) and the distance between point ((x, y)) and point ((3, 4)) is equal to 10.</td>
</tr>
<tr>
<td>12.</td>
<td>Given: ( \overline{XZ} \equiv \overline{YZ}, \overline{XV} \perp \overline{YZ}, \overline{YU} \perp \overline{XZ} ). Write a two-column proof to show that ( \overline{XV} \equiv \overline{YU} ).</td>
</tr>
</tbody>
</table>

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