17th November

Sketch the graph of \( y = \cos x \) for \( 0 \leq x \leq 360 \).

<table>
<thead>
<tr>
<th>( x )</th>
<th>0</th>
<th>90</th>
<th>180</th>
<th>270</th>
<th>360</th>
</tr>
</thead>
<tbody>
<tr>
<td>( y )</td>
<td>-1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>-1</td>
</tr>
</tbody>
</table>

Express in the form \( \sqrt{b} \)

\[
\frac{30}{\sqrt{6}}
\]

Solve

\[
x + y - 4 = 0
\]
\[
y^2 - 5 = 4x
\]

Solve \( 3x^2 + 5x - 105 < 2x^2 - 3x \)

A sphere has radius \( c \)

A hemisphere has radius \( d \).

The volume of the hemisphere is twice the volume of the sphere.

Work out the value of

\[
\frac{d}{c}
\]