Chapter 6 – problem 10

\[ \sum F_y = A_y + B - 1 = 0 \]

\[ \sum M_A = 10B - 15(1) = 0 \]

\[ B = 1.5 \]
\[ A_y = -0.5 \]

\[ \sum M_A = 10B - 5(1) = 0 \]

\[ B = 0.5 \]
\[ A_y = 0.5 \]
a) The vertical reaction at B

b) The moment (purple) and shear (red) at C
The moment and shear at C (x=5ft) are highlighted by a red box in the table 1 above.

Percent difference = 200 abs \[(x1 - x2) / (x1 + x2)\], where x1 is hand calculated answer and x2 is the software answer. According to the table below, since the percent difference of the moment at C is very small, the result from the hand calculations almost agrees with the result from the software. The percent difference of both, the vertical reaction at B and shear at C are zero, the results from the hand calculations perfectly agrees with the results from the software.

<table>
<thead>
<tr>
<th>Vertical Reaction at B</th>
<th>[200 \times \text{abs} \left( \frac{1.5 - 1.5}{1.5 + 1.5} \right) = 0.000]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moment at C</td>
<td>[200 \times \text{abs} \left( \frac{2.5 - 2.48}{2.5 + 2.48} \right) = 0.803]</td>
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<tr>
<td>Shear at C</td>
<td>[200 \times \text{abs} \left( \frac{0.5 - 0.5}{0.5 + 0.5} \right) = 0.000]</td>
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