## Worksheet 6 Solutions

1. table for Qs look like:

| $\begin{aligned} & \text { Q_(01) } \\ & (1 / 2) \end{aligned}$ | $\begin{array}{r} 0.1111 \\ 11 \end{array}$ | $\begin{aligned} & \text { Q_(11) } \\ & (1 / 2) \end{aligned}$ | $\begin{array}{r} 0.6666 \\ 67 \end{array}$ | $\begin{aligned} & \text { Q_(2,2) } \\ & (1 / 2) \end{aligned}$ | 1.5 | $\begin{aligned} & Q_{-}(3,3) \\ & (1 / 2) \end{aligned}$ | $\begin{array}{r} 1.7777 \\ 78 \end{array}$ | Q_(44) | $\begin{array}{r} 1.7083 \\ 33 \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 11 | $\begin{array}{r} 0.3333 \\ 33 \end{array}$ | 21 | $\begin{array}{r} 1.3333 \\ 33 \end{array}$ | 32 | $\begin{array}{r} 1.8333 \\ 33 \end{array}$ | 43 | $\begin{array}{r} 1.6666 \\ 67 \end{array}$ |  |  |
| 21 | 1 | 31 | 2 | 42 | 1.5 |  |  |  |  |
| 31 | 3 | 41 | 0 |  |  |  |  |  |  |
| 41 | 9 |  |  |  |  |  |  |  |  |

b. for the other approximation, table for Qs look like

|  | $\begin{aligned} & \text { Q_(01) } \\ & (1 / 2) \end{aligned}$ | 0 | $\begin{aligned} & \text { Q_(11) } \\ & (1 / 2) \end{aligned}$ | 3 | $\begin{aligned} & Q_{-}(2,2) \\ & (1 / 2) \end{aligned}$ | $\begin{array}{r} 1.2426 \\ 41 \end{array}$ | $\begin{aligned} & Q_{-}(3,3) \\ & (1 / 2) \end{aligned}$ | $\begin{array}{r} 1.6213 \\ 2 \end{array}$ | Q_(44) | $\begin{array}{r} 1.6906 \\ 07 \end{array}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | 11 | 1 | 21 | $\begin{array}{r} 1.8284 \\ 27 \end{array}$ | 32 | $\begin{array}{r} 1.7475 \\ 47 \end{array}$ | 43 | $\begin{array}{r} 1.7367 \\ 98 \end{array}$ |  |  |
|  | 21 | $\begin{array}{r} 1.4142 \\ 14 \end{array}$ | 31 | $\begin{array}{r} 1.7071 \\ 07 \end{array}$ | 42 | $\begin{array}{r} 1.7260 \\ 49 \end{array}$ |  |  |  |  |
|  | 31 | 2 | 41 | $\begin{array}{r} 1.7639 \\ 32 \end{array}$ |  |  |  |  |  |  |
|  | 41 | $\begin{array}{r} 2.2360 \\ 68 \end{array}$ |  |  |  |  |  |  |  |  |

2. For this just need to solve:
a. $y=\frac{6}{2^{3}}+\frac{b}{2^{2}}+\frac{c}{2}$
b. $3=6+b+c$
c. $2=6 \cdot 2^{3}+b 2^{2}+2 c$
d. I get $y=\frac{3}{4}-\frac{8}{4}-\frac{11}{2}$
3. I got
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2.360605
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4. apply divided differences to see that the fourth and fifth order terms are zero.
