GRADING EXAMPLE FOR A POP QUIZ:
Red point deductions were made by the T.A. according to the key I gave them. Green underlines and circles were made by me, and mean that I agreed with the deductions made. Changes in grading (my decision on the proper value of the problem) made in green.

\[ A = \frac{1}{3} (14 \cdot 30) = 160 \]

\[ W = \frac{kx^2}{EI} - \frac{w(x)}{EI} = \frac{d^2 y}{dx^2} \]

\[ M(x) = \frac{d^2 y}{dx^2} - kx^2 = \frac{d^2 y}{dx^2} \]

from where: work not shown but reactions correct
\[ W = 0.117x^2 \]
\[ V = -0.057x^3 + c_1 \]
\[ m = -0.097x^4 + c_1x + c_2 \]
\[ 0 = 27.63 + 3c_1 + c_2 \]
\[ 0 = 27.042 + 15c_1 + c_2 \]
\[ c_1 = -27.63 \]
\[ c_2 = 82.1 \]

\[ E I \frac{d^2 y}{dx^2} = M(x) = -0.097x^4 - 27.63x + 82 \]

\[ m = -0.097x^4 - 27.63x + 82 \leq 16(x-3) - 144 \leq x-13 \]

\[ m = 258.7 \text{ kN.m} \]

\[ M = 59.9 \text{ kN.m} \]

\[ 15 \text{/} 20 \]