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ARCH 324 - Structures 2, Winter 2009

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**LEFT END**

\[
\frac{M_L}{28} + \frac{M_R}{28} = 2285.7 = 0
\]

\[
M_L = 2285.7 - M_R(4.667) = 2285.7 - 10.50 = 2181.2
\]

\[
M_R = \frac{1782}{13.993} = 127.3 \text{ kN-m}
\]

**RIGHT END**

\[
\frac{M_L}{28} + \frac{M_R}{28} = 2034.3 = 0
\]

\[
M_L = 244.90 - M_R(5.89) = 244.90 - 2.0 = 242.9
\]

\[
M_R = \frac{1782}{13.993} = 127.3 \text{ kN-m}
\]

Determine slope direction by inspection - like slope app., opposite slope subtracts.
**Alternate Solution**

**Left End:**
\[
\frac{M_L}{3} = \frac{2285.7 - M_R(14)}{9.333}
\]

\[
M_L = 244.9 - M_R(1.5)
\]

\[
M_L = 53.9 \text{ k-ft}
\]

**Right End:**
\[
\frac{M_L}{6} + \frac{M_R}{2} - 2034.3 = 0
\]

\[
M_L = 435.92 - M_R(3)
\]

\[
244.9 - M_R(1.5) = 435.92 - M_R(3)
\]

\[
M_R = 127.3 \text{ k-ft}
\]

\[
M_{LT} = 127.3 + 53.8 = 181.2 \text{ k-ft}
\]

**Get slope direction by inspection:**

- **Like slope adds, opposite slope subtracts**