1. The reinforced beam shown below is subjected to a set of uniform loads as given below. Determine the instantaneous or short-term deflection of the beam using:

A. ACI 318 code procedure;

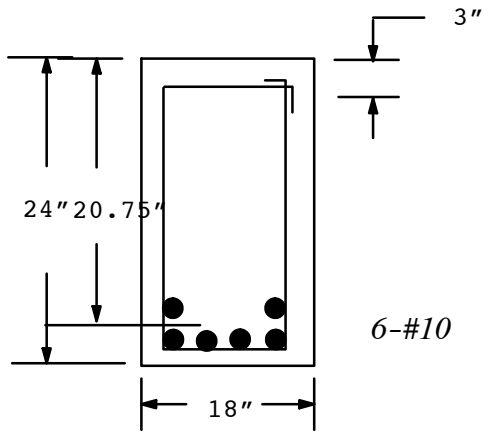
B. Moment curvature method.

Determine if the beam satisfies the deflection requirements given in section 9.5 of ACI 318. Assume that the beam is part of the floor system and is not supporting non-structural elements that are likely to be damaged by large deflections. Load given are service loads.

f'_c = 4.5 ksi

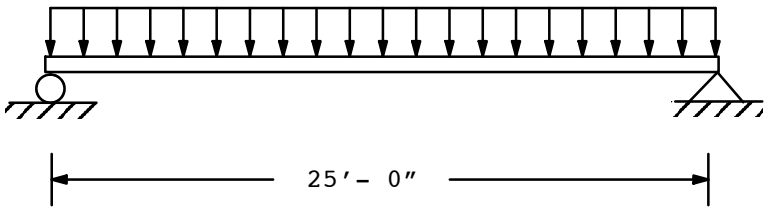
f_y = 60 ksi

#3 stirrups



W_D = 1.5 klf including beam weight

W_L = 1.5 klf



C. Compute the deflection occuring after the partitions are installed. Assume that the partitions are installed 2 months after the shoring for the beam is removed and that 25% of the live load is sustained.

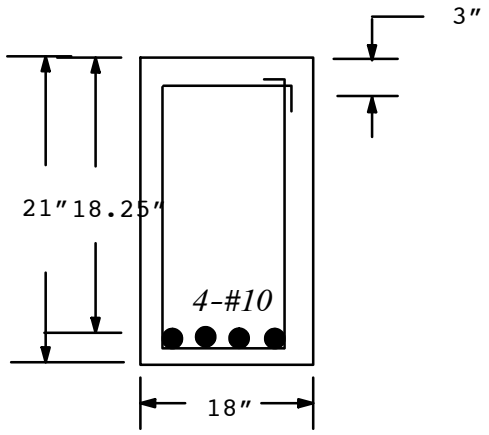
2. The reinforced beam shown below is subjected to a set of uniform loads as given below. Determine the instantaneous or short-term deflection of the beam using moment curvature method.

Determine if the beam satisfies the deflection requirements given in section 9.5 of ACI 318. Assume that the beam is part of the floor system and is not supporting non-structural elements that are likely to be damaged by large deflections. Load given are service loads.

$f'_c = 5$ ksi

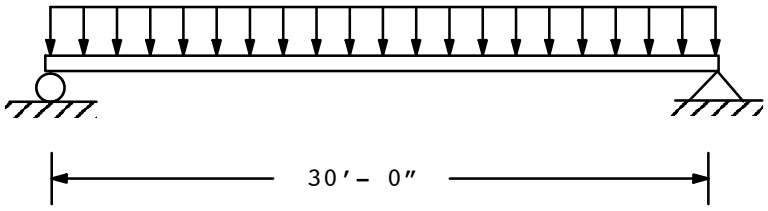
$f_y = 60$ ksi

#3 stirrups



$W_D =$ 1.0 klf including beam weight

$W_L =$ 1.0 klf



C. Compute the deflection occuring after the partitions are installed. Assume that the partitions are installed 2 months after the shoring for the beam is removed and that 25% of the live load is sustained.