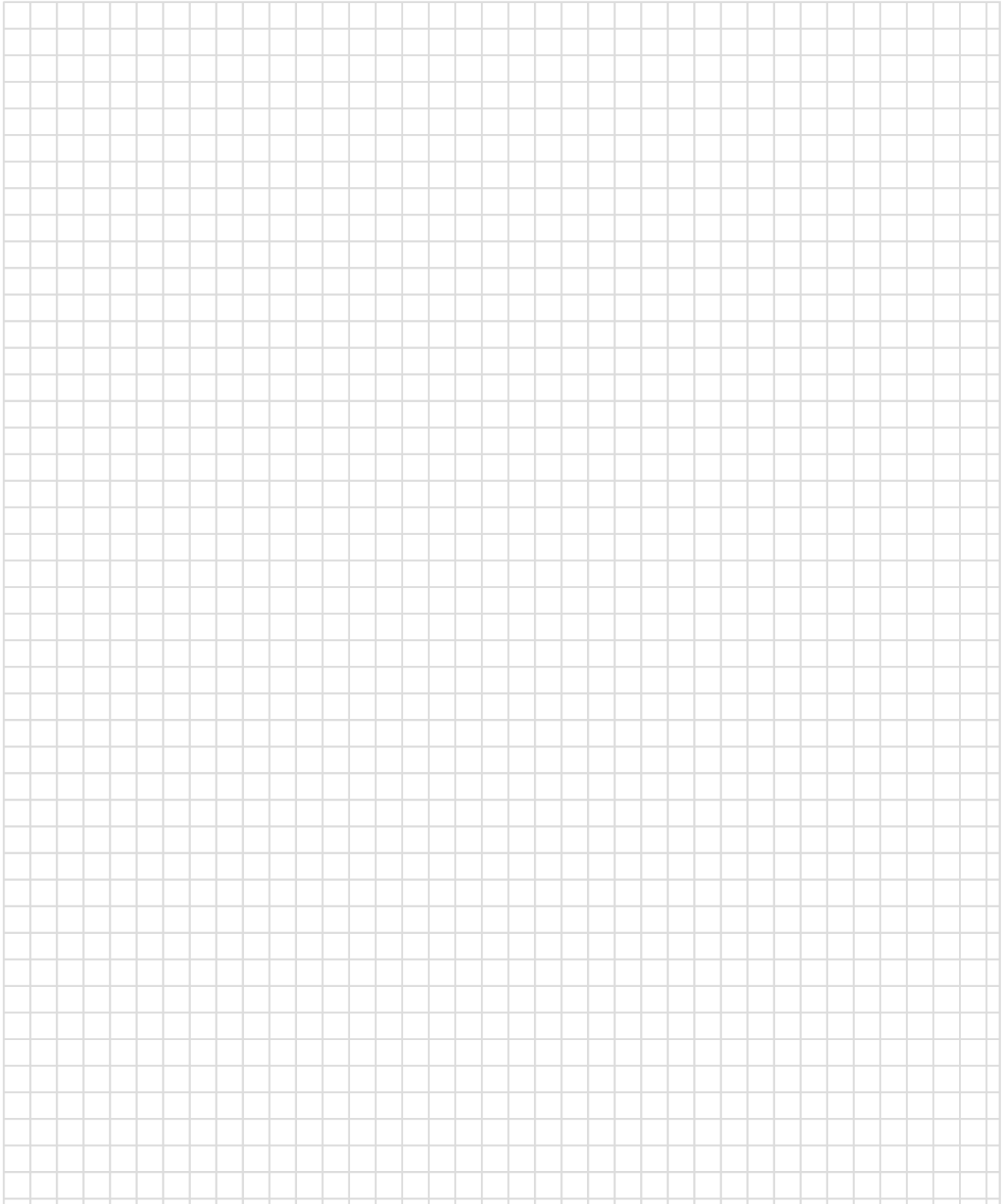


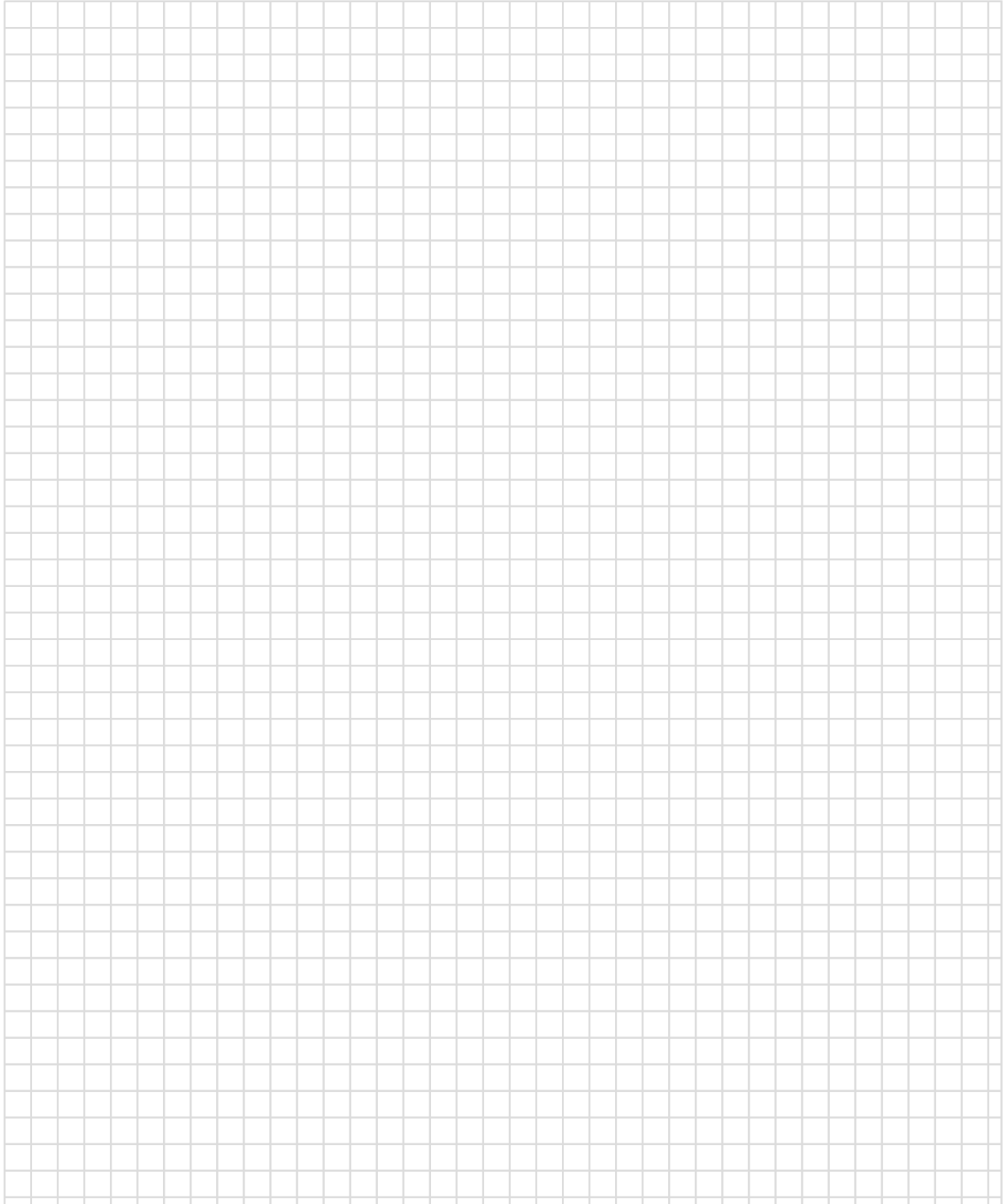
1. A simply supported standard wood joist is 14 ft long and supports a concentrated load at midspan of 5 kip. Select a size that will be adequate for both shear and bending if the allowable shear stress is 90 psi and the allowable bending stress is 1350 psi.

Solution.

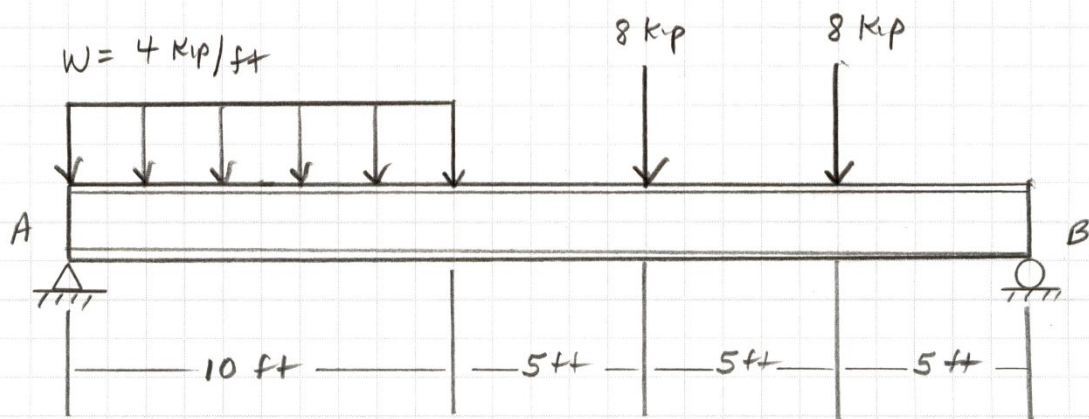


2. Calculate the magnitude of uniform load needed to cause a 2x10 floor joist to deflect 0.50 in. The floor joist spans 16-ft and the modulus of Elasticity is 1.4×10^6 psi.

Solution.



3. Solve for the reactions at the supports and sketch the shear and moment diagrams. Locate the section(s) where the shear force is zero and determine the moment at the section(s).



Solution.

4. Select the lightest wide-flange steel section for the beam and load in problem 3. Use A36 steel and assume the beam is supported laterally for its entire length. The weight of the beam is already included in the uniform load.

Solution.

