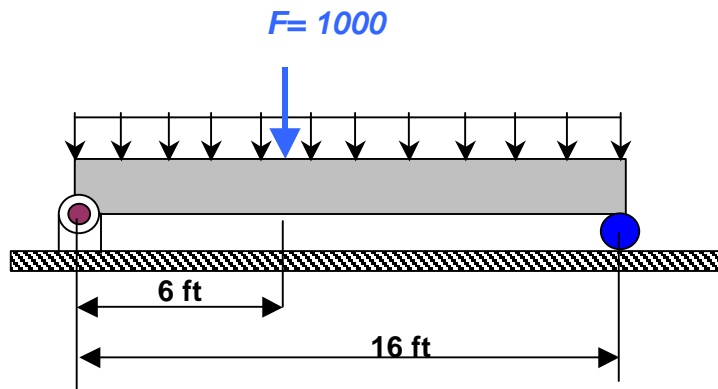## Superposition

If a linear relationship exists between deflections (or stresses) and applied loads, the method of superposition may be used.
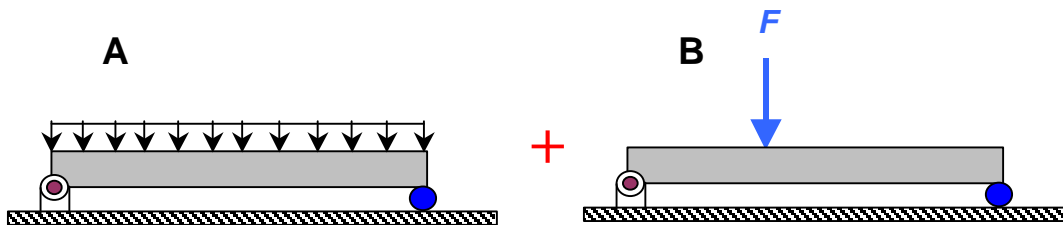
Superposition combines simpler models to represent more complex models.

Example.

Find the deflection at midspan on the following beam. The distributed load is **500 lb/ft**.

This model is the same as:

Find the deflection at midspan for model A and add to the deflection at midspan for model B; total deflection will be the same as the original model.

In class assignment

Use singularity functions to find the deflection of the original model at midspan, then follow by using superposition applied to models A and B. The modulus of elasticity, E, for the material is 1900 ksi and the cross-section of the beam is rectangular (4 in. wide by 8 in. high).