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The force  $F$  in a linear spring is given by  $F = kx$ , where  $k$  is the spring constant (force per unit length of spring deflection) and  $x$  is the spring deflection. Find the force in a spring with a spring constant of 100 lb/ft and a deflection of 3.00 in.

Solution.

$$F = kx$$

$$x = 3\text{ in} \times \frac{1\text{ ft}}{12\text{ in}} = 0.25\text{ ft}$$

$$F = 100 \frac{\text{lb}}{\text{ft}} (0.25\text{ ft}) = 25\text{ lb}$$