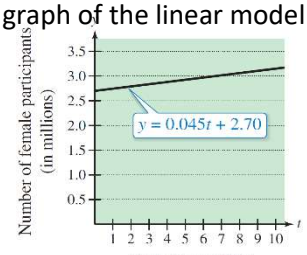
Linear Equations

- TO SOLVE: All variable terms on one side, numerical terms on the other.
- One solution
- EX: $3(x+2) = 8(x+7)$

- Rational Equations that Lead to Linear Equations
  - Solve: $\frac{x}{3} + \frac{3x}{4} = 2$

  - When multiplying or dividing an equation by a *variable expression*, it is possible to introduce an **extraneous solution** that does not satisfy the original equation.
  - EX: $\frac{1}{x-2} = \frac{3}{x+2} - \frac{6}{x^2-4}$

  - Application: The number *y* (in millions) of female participants in high school athletic programs in the United States from 2000 through 2010 can be approximated by the linear model $y = 0.045t + 2.70 \quad 0 \le t \le 10$ where *t* = 0 represents 2000.
    - Find algebraically and interpret the *y*-intercept of the graph of the linear model shown.
    - Use the linear model to predict the year in which there will be 3.42 million female participants.



Female Participants in High School Athletics