Name: _____ Date: _____

2- 7 THE ZERO PRODUCT LAW

FLUENCY

1. Solve each of the following equations for all value(s) of x.

   (a) $(x-2)(x+5)=0$ (b) $(7x-1)(2x+5)=0$ (c) $(3x-1)(3x+1)=0$

2. Solve each of the following quadratic equations which have already been set equal to zero.

   (a) $x^2+10x+16=0$ (b) $3x^2+11x-4=0$ (c) $12x^2+8x=0$

3. Solve each of the following quadratic equations by first manipulating them so that one side of the equation is set equal to zero.

   (a) $x^2+4x-40=10x+15$ (b) $4x^2+3x-11=3x-2$

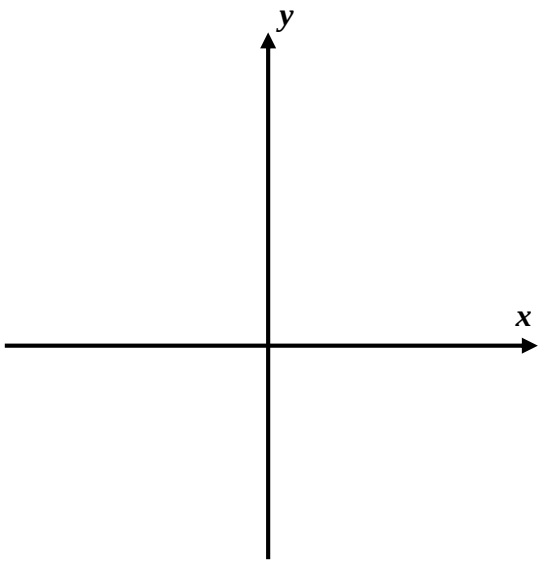
   (c) $6x^2-15x+2=2x^2+10x-4$ (d) $-16t^2+76t+5=12t+5$

APPLICATIONS

4. Consider the system of equations shown below consisting of one linear and one quadratic equation.

   $y = 4x - 5$ and $y = 2x^2 - 5x - 10$

   (a) Find the intersection points of this system *algebraically*.



   (b) Using your calculator, sketch a graph of this system to the right. **Be sure to label the curves with equations, the intersection points, and the window.**

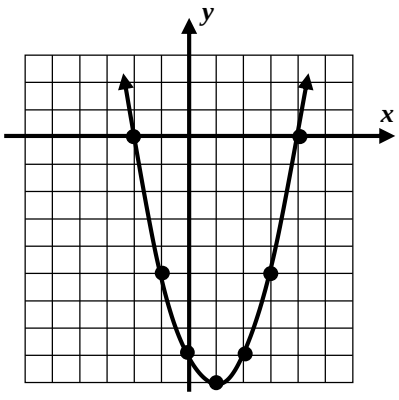
5. *Algebraically*, find the zeroes (*x*-intercepts) of each quadratic function given below.

   (a) $y = x^2 - 81$ (b) $y = 12x^2 - 18x$ (c) $y = 2x^2 - 6x - 8$

REASONING

6. A quadratic function of the form $y = x^2 + bx + c$.

   (a) What are the *x*-intercepts of this parabola?



   (b) Based on your answer to part (a), write the equation of this quadratic function first in factored form and then in trinomial form.