

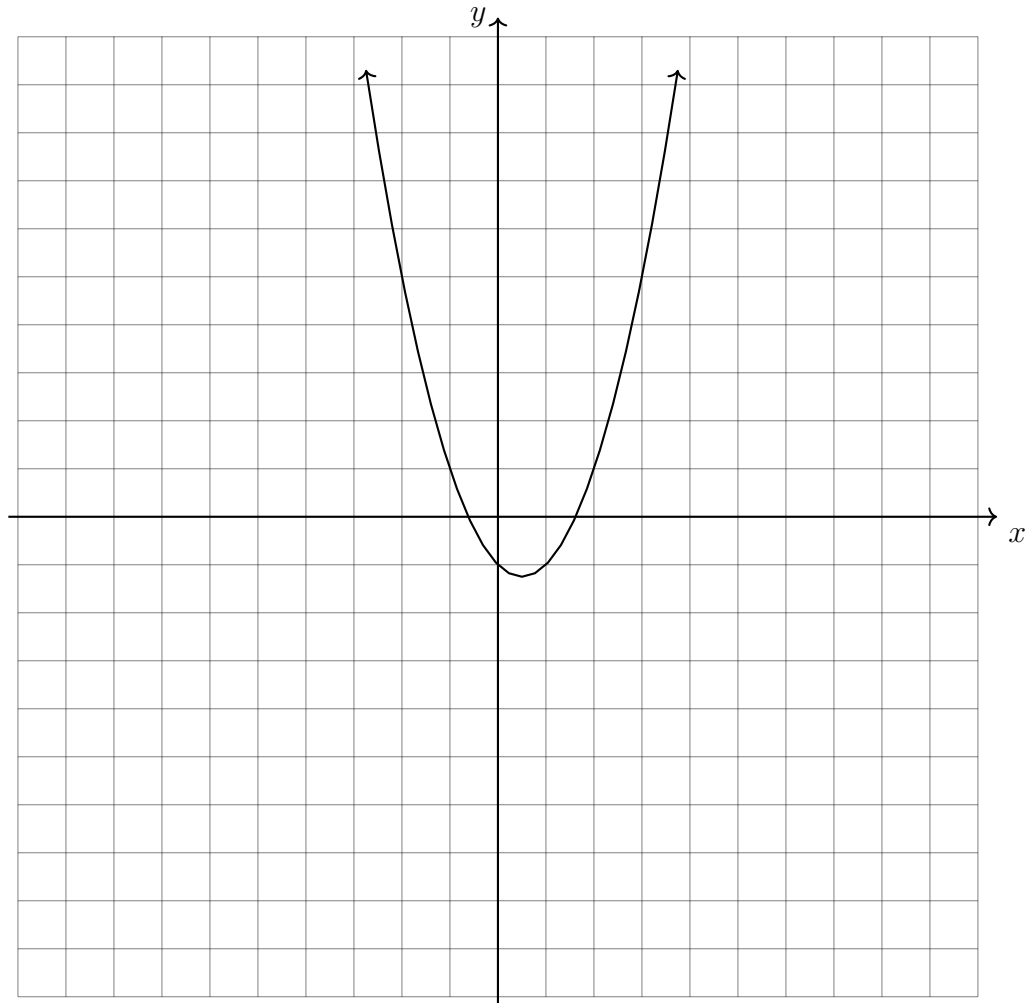
### 3.1 Do Now: Graphing quadratic systems

1. The quadratic of a system of equations is graphed. Add a graph of the linear equation. Mark the intersections as ordered pairs.

$$y = x^2 - x - 1$$

$$y = x + 2$$

What values of  $x$  satisfy the system of equations?



Make sure you can explain the meaning of the following terms: quadratic, linear, system of equations, solution, “satisfy”, ordered pair, intersection.

2. Circle the equations that are identities.

(a)  $x^2 + y^2 = (x + y)^2$

(c)  $x^3 - y^3 = (x + y)(x^2 - xy + y^2)$

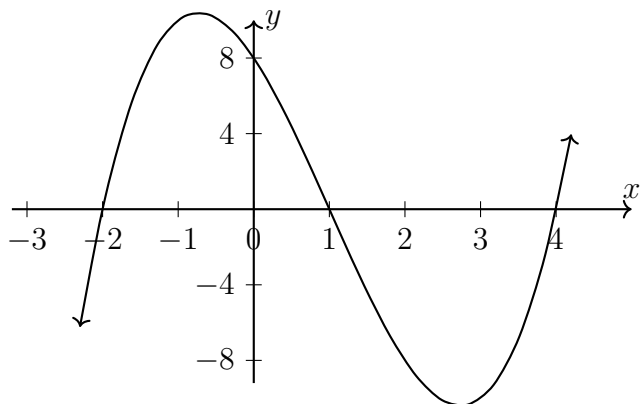
(b)  $x^2 - y^2 = x^2 - 2xy + y^2$

(d)  $x^3 + y^3 = (x + y)(x^2 - xy - y^2)$

3. Write a recursive definition of the sequence  $a_1 = -6$ ,  $a_2 = -9$ ,  $a_3 = -12$ ,  $a_4 = -15, \dots$

4. Write down the solutions to the equation  $(2x - 7)(x - 5)(x - 1) = 0$

5. Graphed is  $f(x) = x^3 - 6x^2 + 3x + 8$ . Write the function in factored form.



6. Solve algebraically for  $x$ :  $\frac{3}{x^2} + \frac{5}{x} = \frac{6}{x^2}$