**4.1 – Graphical Solutions of Quadratic Equations**

REMINDER: Solving an equation graphically means graphing the expressions on each side of the equality and look for the values of the variable for which the 2 graphs intersect…

If the equation is quadratic, at least one of the graphs will be a parabola and the other one will be another parabola or a straight line.

Example: Solve $x^{2}+4x-5=3x+1$ graphically.



Note: You can verify your solutions by replacing the variable by the value and check if the equality is true:

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Vocabulary: It is always possible to “move” all the terms on the same side of the equation. In the previous example, we would get: $x^{2}+x-6=0$.

The **solutions** of such an equation are also called **zeros** (or *x*-intercepts) of the function $y=x^{2}+x-6$ or **roots** of the polynomial $P=x^{2}+x-6$.

A quadratic equation can have 0, 1 or 2 solutions (unless both expressions are equivalent…).

Note: Solving graphically doesn’t usually give us exact values. In order to get a better approximation, we can use our graphing calculator … (CALC – zeros or intersect).

Note: In order to see the zeros on a graph, it is important to choose an appropriate window (scale and position of the axis). That might require some calculations (vertex…) even when using a calculator.

Hwk : p 215 # 1, 2, 3abe, 4ab, 5, 7, 8, 11, 13, 17.