> **\# Prof. Dr. Serkan Dağ**
\# ME 310 Numerical Methods
\# File 4.5
\# Roots of the equations : $x = y + x^2 - 0.5$; $y = x^2 - 5\ xy$

> *restart* :
Digits := 16 :
with(*plots*) :

> **\# Define the equations**

> $u := x - y - x^2 + 0.5$;
$v := y - x^2 + 5 \cdot x \cdot y$;

$$u := x - y - x^2 + 0.5$$
$$v := -x^2 + 5\,x\,y + y$$

(1)

> **\# Implicit plots**

> p1 := *implicitplot*($u = 0$, $x = -2\,..2$, $y = -2\,..2$, *color* = *blue*, *thickness* = 3) :
p2 := *implicitplot*($v = 0$, $x = -2\,..2$, $y = -2\,..2$, *color* = *green*, *thickness* = 3) :

> *display*({p1, p2});
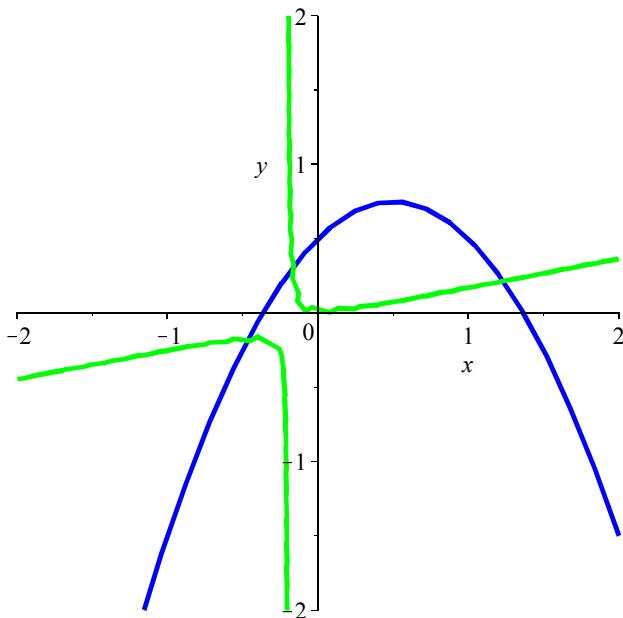
> *fsolve*({$u = 0$, $v = 0$}, {$x = 1\,..1.5$, $y = 0\,..0.4$});
$$\{x = 1.233317793003674, y = 0.2122450144642213\}$$

(2)

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