

Solving for x cont.

standard form

option 1: factor & solve

ex 1 $y = x^2 - 6x - 7$

ex 2 $f(x) = 2x^2 - 7x - 4$

factor: $y = (x-7)(x+1)$

solve: $0 = (x-7)(x+1)$

$x-7=0$ $x+1=0$
 $x=7$ $x=-1$

$f(x) = (2x+1)(x-4)$

$0 = (2x+1)(x-4)$

$2x+1=0$ $x-4=0$
 $2x=-1$ $x=4$
 $x=-1/2$ $x=4$

option 2: the quadratic formula

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

ex 1 $y = 2x^2 - 3x + 1$

ex 2 $3x^2 - 5x = 1$

find a, b, c: $a=2, b=-3, c=1$

set equal to zero: $3x^2 - 5x - 1 = 0$

plug into the QF:

$a=3, b=-5, c=-1$

$x = \frac{-(-3) \pm \sqrt{(-3)^2 - 4(2)(1)}}{2(2)}$

$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4(3)(-1)}}{2(3)}$

$x = \frac{3 \pm \sqrt{9-8}}{4}$

$x = \frac{3 \pm \sqrt{1}}{4}$

$x = \frac{3 \pm 1}{4}$

$\frac{3+1}{4} = 1$

$\frac{3-1}{4} = 1/2$

$x=1, x=1/2$

$x = \frac{5 \pm \sqrt{25+12}}{6}$

$x = \frac{5 \pm \sqrt{37}}{6}$

* don't forget to reduce if possible

this means you could have factored as well