Ex 5 Solving quadratic inequality

$x^2 - x - 12 < 0$

$x^2 - x - 12 = 0$ Solve equality

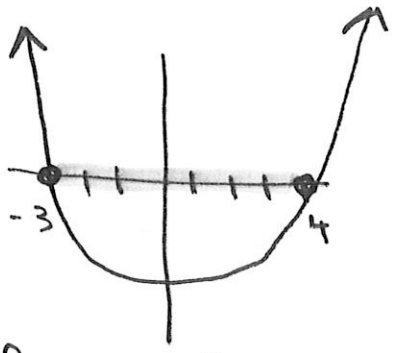
$(x+3)(x-4) = 0$

$3(4) \mid 3-4 = -1$ (−12 | −1)

$x + 3 = 0$ $\quad$ $x - 4 = 0$

$-3 \quad -3$ $\quad$ $+4 \quad +4$

$x = -3$ $\quad$ $x = 4$



$-3 < x < 4$

$(-3, 4)$ Solution for $\underbrace{x^2 - x - 12}_{y} < 0$

$-x^2 - x - 12 > 0$

$(-\infty, -3) \cup (4, \infty)$ for parts of graph ABOVE x-axis

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Ex 7 Projectile launched from ground level

height s in feet, t seconds after launch

$s = -16t^2 + 96t$

When will the projectile be greater than 80 feet above ground?

$80 < -16t^2 + 96t$

$-16t^2 + 96t > 80$

$-16t^2 + 96t = 80$

$-80 \quad -80$

$-16t^2 + 96t - 80 = 0$

$\frac{-16(t^2 - 6t + 5)}{-16} = \frac{0}{-16}$

① Solve equality

$t^2 - 6t + 5 = 0$

$(t-1)(t-5) = 0$

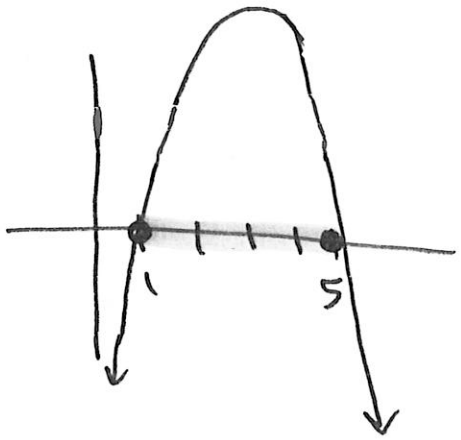
5	-6
(-1)(-5)	-1 + -5 = -6

$t - 1 = 0 \quad +1 \; +1$

$t = 1$ sec

$t - 5 = 0 \quad +5 \; +5$

$t = 5$ sec



$1 < X < 5$

$\boxed{(1, 5)}$