U-Substitution

Solve: $3^{2x} - 5(3^x) + 4 = 0$

Rewrite the equation in terms of u.
↳ do not want x in the exponent

Let $\boxed{u = 3^x}$ $\quad u^2 = (3^x)^2 = 3^{2x}$

$$u^2 - 5u + 4 = 0$$

Factor the polynomial in terms of u.

Mult. to 4	Add to -5
(-4, -1)	-5 ✓

$$(u-4)(u-1) = 0$$

Solve for u.

$u - 4 = 0$ $\quad u - 1 = 0$

$u = 4$ $\quad u = 1$

Sub $u = 1$ & $u = 4$ into $u = 3^x$ to solve for x.

$4 = 3^x$ $\quad 1 = 3^x$

$\log_3(4) = x$ $\quad \log_3(1) = x$

$\boxed{x = 1.262}$ $\quad \boxed{x = 0}$