Original Equation in x	Substitution	Quadratic in y	Solutions for y	Solutions for x
$x^4 - 10x^2 + 21 = 0$	$y = x^2$	$y^2 - 10y + 21 = 0$	$y = 7, y = 3$	$x = \pm\sqrt{7}, \pm\sqrt{3}$
$x^6 = 7x^3 + 8$	$y = x^3$		$y = 8, y = -1$	
$x - 3\sqrt{x} - 10 = 0$				$x = 25, x = 4$
$2^{2x} - 6 \times 2^x + 8 = 0$	$y = 2^x$			
$\sqrt{x} + \frac{1}{\sqrt{x}} = 2$				
$9^x - 28 \times 3^x + 27 = 0$				
$x\sqrt[3]{x} - 13x^{\frac{2}{3}} + 36 = 0$	$y = x^{\frac{2}{3}}$			
$x^3 + 9x + \frac{20}{x} = 0$				
$\left(x - \frac{6}{x}\right)^2 - 6\left(x - \frac{6}{x}\right) + 5 = 0$	$y = \left(x - \frac{6}{x}\right)$			

Original Equation in x	Substitution	Quadratic in y	Solutions for y	Solutions for x
$x^4 - 10x^2 + 21 = 0$	$y = x^2$	$y^2 - 10y + 21 = 0$	$y = 7, y = 3$	$x = \pm\sqrt{7}, \pm\sqrt{3}$
$x^6 = 7x^3 + 8$	$y = x^3$	$y^3 - 7y - 8 = 0$	$y = 8, y = -1$	$x = 2, x = -1$
$x - 3\sqrt{x} - 10 = 0$	$y = \sqrt{x}$	$y^2 - 3y - 10 = 0$	$y = 5, y = -2$	$x = 25, x = 4$
$2^{2x} - 6 \times 2^x + 8 = 0$	$y = 2^x$	$y^2 - 6y + 8 = 0$	$y = 2, y = 4$	$x = 1, x = 2$
$\sqrt{x} + \frac{1}{\sqrt{x}} = 2$	$y = \sqrt{x}$	$y^2 - 2y + 1 = 0$	$y = 1$	$x = 1$
$9^x - 28 \times 3^x + 27 = 0$	$y = 3^x$	$y^2 - 28y + 27 = 0$	$y = 27, y = 1$	$x = 3, x = 0$
$x\sqrt[3]{x} - 13x^{\frac{2}{3}} + 36 = 0$	$y = x^{\frac{2}{3}}$	$y^2 - 13y + 36 = 0$	$y = 4, y = 9$	$x = 8, x = 27$
$x^3 + 9x + \frac{20}{x} = 0$	$y = x^2$	$y^2 + 9y + 20 = 0$	$y = -4, y = -5$	No real solutions
$\left(x - \frac{6}{x}\right)^2 - 6\left(x - \frac{6}{x}\right) + 5 = 0$	$y = \left(x - \frac{6}{x}\right)$	$y^2 - 6y + 5 = 0$	$y = 1, y = 6$	$x = -2, x = -1, x = 3, x = 6$