10.3

$au^2 + bu + c = 0$

Solve.

① $x + 11\sqrt{x} - 26 = 0$

Let $u = \sqrt{x}$

$u^2 = x$

$u^2 + 11u - 26 = 0$

$(u+13)(u-2) = 0$

$u + 13 = 0 \quad u - 2 = 0$

$-13 \quad -13 \quad +2 \quad +2$

$u = -13 \quad u = 2$

$\sqrt{x} = -13 \quad \sqrt{x} = 2$

$(\sqrt{x})^2 = (-13)^2 \quad (\sqrt{x})^2 = (2)^2$

$\boxed{x = 169} \quad \boxed{x = 4}$

② $x - 6x^{1/2} + 5 = 0$

$x - 6\sqrt{x} + 5 = 0$

Let $u = \sqrt{x}$

$u^2 = x$

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

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

$u - 5 = 0 \quad u - 1 = 0$

$u = 5 \quad u = 1$

$\sqrt{x} = 5 \quad \sqrt{x} = 1$

$(\sqrt{x})^2 = (5)^2 \quad (\sqrt{x})^2 = (1)^2$

$x = 25 \quad x = 1$

(3) $x^4 - x^2 - 12 = 0$

Let $u = x^2$

$u^2 = x^4$

$u^2 - u - 12 = 0$

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

$u - 4 = 0 \qquad u + 3 = 0$

$u = 4 \qquad u = -3$

$x^2 = 4 \qquad x^2 = -3$

$\sqrt{x^2} = \sqrt{4} \qquad \sqrt{x^2} = \sqrt{-3}$

$\sqrt{-3} = \sqrt{-1}\sqrt{3}$
$= i\sqrt{3}$

$\boxed{x = \pm 2} \qquad \boxed{x = \pm i\sqrt{3}}$

(4) $x^4 - 11x^2 + 18 = 0$

Let $u = x^2$

$u^2 = x^4$

$u^2 - 11u + 18 = 0$

$(u-2)(u-9) = 0$

$u - 2 = 0 \qquad u - 9 = 0$

$u = 2 \qquad u = 9$

$x^2 = 2 \qquad x^2 = 9$

$\sqrt{x^2} = \sqrt{2} \qquad \sqrt{x^2} = \sqrt{9}$

$\boxed{x = \pm\sqrt{2}} \qquad \boxed{x = \pm 3}$

(5) $x^{2/3} - 4x^{1/3} + 3 = 0$

Let $u = x^{1/3}$

$u^2 = x^{2/3}$

$u^2 - 4u + 3 = 0$

$(u-3)(u-1) = 0$

$u - 3 = 0 \qquad u - 1 = 0$

$u = 3 \qquad u = 1$

$x^{1/3} = 3 \qquad x^{1/3} = 1$

$(\sqrt[3]{x})^3 = (3)^3 \qquad (\sqrt[3]{x})^3 = (1)^3$

$\boxed{x = 27} \qquad \boxed{x = 1}$