7.3 Solving Equations Using Quadratic Techniques

Objective: Write expressions in Quadratic Form

Quadratic Form: $au^2 + bu + c$

for any a,b,c where $a \neq 0$ and u is some expression in x .

I. Write each Expression in Quadratic Form, if possible.

Ex1) $x^4 + 13x^2 + 36$

$(x^2)^2 + 13(x^2) + 36$

Ex2) $2x^6 + x^3 + 9$

$2(x^3)^2 + (x^3) + 9$

Ex3) $10b^4 + 3b^2 - 11$

$10(b^2)^2 + 3(b^2) - 11$

Ex4) $16x^6 - 625$

$16(x^3)^2 - 625$

or

$(4x^3)^2 - 625$

Ex5) $7x^{10} + 6$

$7(x^5)^2 + 6$

Ex6) $12x^8 - x^2 + 10$

$12(x^4)^2 - (x^4) + 10$

Does not match

Not Possible

Ex7) $x^4 + 2x^3 - 1$

$(x^2)^2 + 2(x^2) - 1$

Not Possible

Ex8) $x - 9x^{1/2} + 8$

$(x^{1/2})^2 - 9(x^{1/2}) + 8$

Ex9) $x^{2/3} + 2x^{1/3} - 4$

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

$\frac{1}{3} \cdot \frac{2}{1} = \frac{2}{3}$