

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

$$(3x + 6)^2 - 5(3x + 6) + 6 = 0$$

$$\left(\frac{1}{2x}\right)^2 - 5\left(\frac{1}{2x}\right) + 6 = 0$$

All three are QE's,
but the last two have
functions imbedded
inside.

$$(3x+6)^2 - 5(3x+6) + 6 = 0$$

$$\underline{u = 3x + 6}$$

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

$$(u-2)(u-3) = 0$$

$$u-2=0$$

$$u=2$$

$$u-3=0$$

$$u=3$$

$$u = 3x + 6$$

$$2 = 3x + 6$$

$$\begin{array}{r} -6 \\ -4 = 3x \\ \hline 3 \end{array}$$

$$x = -4/3$$

$$3 = 3x + 6$$

$$\begin{array}{r} -6 \\ -3 = 3x \\ \hline 3 \end{array}$$

$$x = -1$$

$$x = -4/3, -1$$

$$3\left(\frac{1}{2x}\right)^2 - 2\left(\frac{1}{2x}\right) + 5 = 0$$

$$u = \frac{1}{2x}$$

$$3u^2 - 2u + 5 = 0$$

$$a = 3 \quad b = -2 \quad c = 5$$

$$u = \frac{2 \pm \sqrt{4 - 4(3)(5)}}{2(3)}$$

$$u = \frac{2 \pm \sqrt{-56}}{6}$$

$$u \approx \frac{2 \pm 7.48i}{6}$$

$$u \approx \frac{2 + 7.48i}{6}$$

$$u \approx \frac{2 - 7.48i}{6}$$

$$u \approx .33 + 3.74i \quad u \approx .33 - 3.74i$$

$$.33 + 3.74i = \frac{1}{2x}$$

$$.33 - 3.74i = \frac{1}{2x}$$

$$\frac{2x(.33 + 3.74i) = 1}{2(.33 + 3.74i)}$$

$$x = \frac{1}{.66 \pm 7.48i}$$

$$x^4 + 7x^2 - 18 = 0$$

$$(x^2 + 9)(x^2 - 2) = 0$$

$$x^2 + 9 = 0$$

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

$$x = \pm 3i$$

$$x^2 - 2 = 0$$

$$x^2 = 2$$

$$x = \pm \sqrt{2}$$

$$x^4 + 7x^2 - 18 = 0$$

$$\underline{u = x^2} \quad u^2 = (x^2)^2 = x^4$$

$$u^2 + 7u - 18 = 0$$

$$u = \frac{-7 \pm \sqrt{49 - 4(-18)}}{2(1)}$$

$$u = \frac{-7 \pm \sqrt{121}}{2} = \frac{-7 \pm 11}{2}$$

$$u = \frac{-7 + 11}{2} = \frac{4}{2} = 2$$

$$u = \frac{-7 - 11}{2} = \frac{-18}{2} = -9$$

$$-9 = x^2$$

$$x = \pm 3i$$

$$2 = x^2$$

$$x = \pm\sqrt{2}$$