

December 2nd

$$x^{-1} + 5x^{-1/2} - 36 = 0$$

This is a quadratic equation in $x^{-\frac{1}{2}}$

$$\left(x^{-\frac{1}{2}} + 9\right)\left(x^{-\frac{1}{2}} - 4\right) = 0$$

Hence

$$x^{-\frac{1}{2}} = -9 \text{ or } x^{-\frac{1}{2}} = 4$$

Therefore

$$x = \frac{1}{16}$$

(Algebraically

$$x^{-\frac{1}{2}} = -9 \quad \therefore \quad x^{-1} = 81 \quad \therefore \quad x = \frac{1}{81}$$

However,

$\frac{1}{81}^{-\frac{1}{2}} = 9$ since it will return the positive square root, so we have to ignore this solution)