

$$\log(x^3) = (\log(x))^3$$

$$3 \log(x) = (\log(x))^3$$

$$u = \log(x)$$

$$3u = u^3$$

$$0 = u^3 - 3u$$

Do not divide by u .

If you do, you will

"lose" this solution.

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

$$u = 0 \text{ or } u^2 - 3 = 0$$

$$u = 0 \text{ or } u^2 = 3$$

$$u = 0 \text{ or } u = \pm\sqrt{3}$$

$$\log(x) = 0 \text{ or } \log(x) = \sqrt{3} \text{ or } \log(x) = -\sqrt{3}$$

$$x = 10^0 \text{ or } x = 10^{\sqrt{3}} \text{ or } x = 10^{-\sqrt{3}}$$

$$x = 1$$

$$x = \frac{1}{10^{\sqrt{3}}}$$

Is $x = 1$ a solution?

$$x^3 = (1)^3 = 1 > 0$$

$$x = (1) = 1 > 0$$

$x = 1$ is a solution

Is $x = 10^{\sqrt{3}}$ a solution?

$$x^3 = (10^{\sqrt{3}})^3 > 0$$

$$x = 10^{\sqrt{3}} > 0$$

$x = 10^{\sqrt{3}}$ is a solution

$$x^3 = \left(\frac{1}{10^{\sqrt{3}}}\right)^3 > 0$$

$$x = \frac{1}{10^{\sqrt{3}}} > 0$$

$x = 10^{-\sqrt{3}}$ is a sol