

9. We need  $8 - 0.2 \leq x^3 \leq 8.2$ , or  $1.9832 \leq x \leq 2.0165$ . Thus, we need  $-0.0168 \leq x - 2 \leq 0.0165$ . Here  $\delta = 0.0165$  will do.