For the function $f(x) = x(1-x)^{\frac{1}{3}}$, we can compute its first and second derivatives:

$$f'(x) = \frac{3-4x}{3(1-x)^{2/3}} \qquad \text{and} \qquad f''(x) = \frac{4x-6}{9(1-x)^{5/3}}$$

Find the critical points of f, and determine whether they are local minima, maxima, or neither. Use the 2nd derivative test if possible.