$$\int x \, f_x(x) \, dx = E[X] = E\left[\max\{x_1, x_2, x_3\}\right]$$

$$F_x(x) = P[X \le x] = P(x_1 \le x, x_2 \le x, x_3 \le x) \stackrel{ind.}{=}$$

$$P(x_1 \le x) \, P(x_2 \le x) \, P(x_3 \le x) = \left(\frac{x - 0}{1 - 0}\right)^3 = x^3$$

$$f_x(x) = F_x'(x) = 3x^2$$

$$\text{median} = \sqrt[3]{0.5}$$