1.

Let $X_{(1)} = \min\{X_i\}_{i=1}^{n}$.

Then

$$F_{X_{(1)}}(x) = p(X_{(1)} \le x)$$

$$= 1 - p(X_{(1)} > x)$$

$$= 1 - p(\min\{X_i\}_{i=1}^{n} > x)$$

$$= 1 - p(X_1 > x, X_2 > x, \ldots X_n > x)$$

$$= 1 - p^{n}(X_1 > x)$$

$$= 1 - (1 - F_X(x))^n.$$

2. $F_X(x) = \frac{x}{\theta}$

$$F_{X_{(n)}}(x) = (F_X(x))^n = \left(\frac{x}{\theta}\right)^n \quad 0 \le x \le \theta$$

3.

$$F_{X_{(1)}}(x) = 1 - (1 - F_X(x))^n$$

$$= 1 - \left(1 - \frac{x}{\theta}\right)^n$$

$$= 1 - \left(\frac{\theta - x}{\theta}\right)^n \quad 0 \le x \le \theta$$