$$1 - \frac{x}{1!} + \frac{x(x-1)}{2!} - \frac{x(x-1)(x-2)}{3!} = \frac{(x-1)(x-2)}{2} - \frac{x(x$$

$$1 - \frac{x}{1!} + \frac{x(x-1)}{2!} - \frac{x(x-1)(x-2)}{3!} =$$

$$= \frac{(x-1)(x-2)}{2} - \frac{x(x-1)(x-2)}{6} =$$

$$= -\frac{(x-1)(x-2)(x-3)}{3!}$$