

In class

Find $P(X=8)$

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$$P(X=x) = p(1-p)^{x-1}$$

$$P(X=8) = \frac{1}{2} \left(1 - \frac{1}{2}\right)^{8-1}$$

$$P(X=8) = \frac{1}{2} \left(\frac{1}{2}\right)^7$$

$$E(X) = \frac{1}{p} = \frac{1}{1/2}$$

$$\sigma_x^2 = \frac{1-p}{p^2} = \frac{1 - \frac{1}{2}}{\left(\frac{1}{2}\right)^2}$$