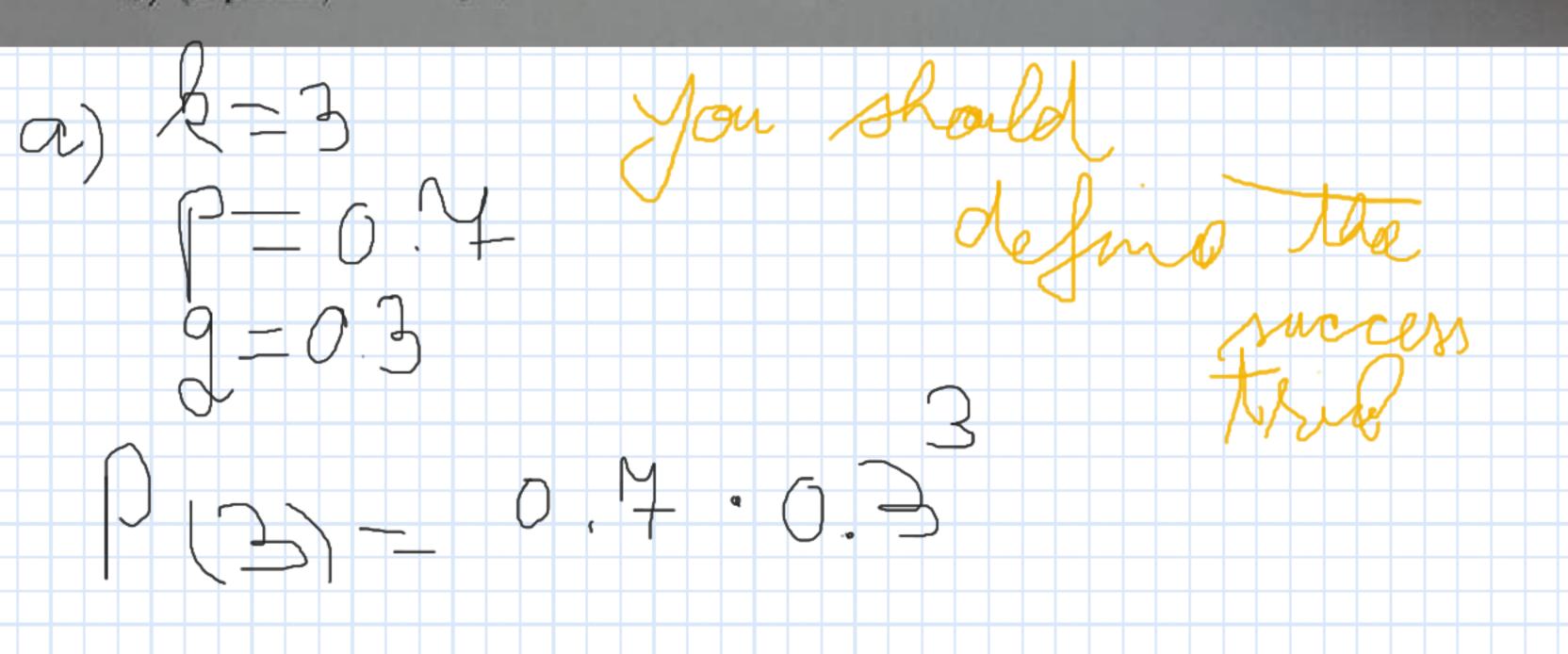
- 1) A basketball player makes a free throw with probability 0.7. Find the probability of the following events:
 - a) (1 point) A: the player makes his first free throw only on the 4th shot;
 - b) (2 points) B: the player makes the first at least 10 consecutive free throws.



- 1) A basketball player makes a free throw with probability 0.7. Find the probability of the following events:
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success is now when the players misses the hit, so we search the probability to succes in the first 10 trials

(2 points) Let $X \in N(0,1)$. Find the pdf of $Y = X^2$. What type of distribution is it?

$$\frac{1}{2} = \frac{1}{2} = \frac{1}$$

Function
$$Y = g(X)$$
: X r.v., $g : \mathbb{R} \to \mathbb{R}$ differentiable with $g' \neq 0$, strictly monotone
$$f_Y(y) = \frac{f_X(g^{-1}(y))}{|g'(g^{-1}(y))|}, \ y \in g(\mathbb{R})$$

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

- 3) Let $X_1, X_2, ..., X_n$ be a random sample drawn from a distribution with pdf $f(x; \theta) = \frac{1}{\theta}$, for $0 < x < \theta$, with $\theta > 0$ unknown.
 - a) (2 points) Find the method of moments estimator, $\hat{\theta}$, for θ .
 - b) (2 points) Is $\hat{\theta}$ an absolutely correct estimator? Explain.

$$E(X) = X \circ A(X) \circ AX = S \circ AX = I S \times AX$$

$$E(X) = I \circ AX = I \circ A$$

- 3) Let X₁, X₂, ..., X_n be a random sample drawn from a distribution with pdf f(x; θ) = 1/θ, for 0 < x < θ, with θ > 0 unknown.
 a) (2 points) Find the method of moments estimator, θ̂, for θ.
 b) (2 points) Is θ̂ an absolutely correct estimator? Explain.