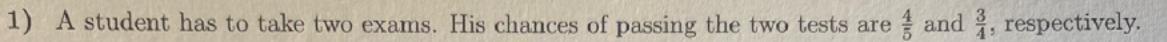


1) A student has to take two exams. His chances of passing the two tests are $\frac{4}{5}$ and $\frac{3}{4}$, respectively. a) (1 point) Find the probability that the student passes exactly one exam. b) (1 point) Let X denote the number of exams the student passes. Find the probability distribution function of X. c) (0.5 points) How many tests is the student expected to pass?



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- b) (1 point) Let X denote the number of exams the student passes. Find the probability distribution function of X.
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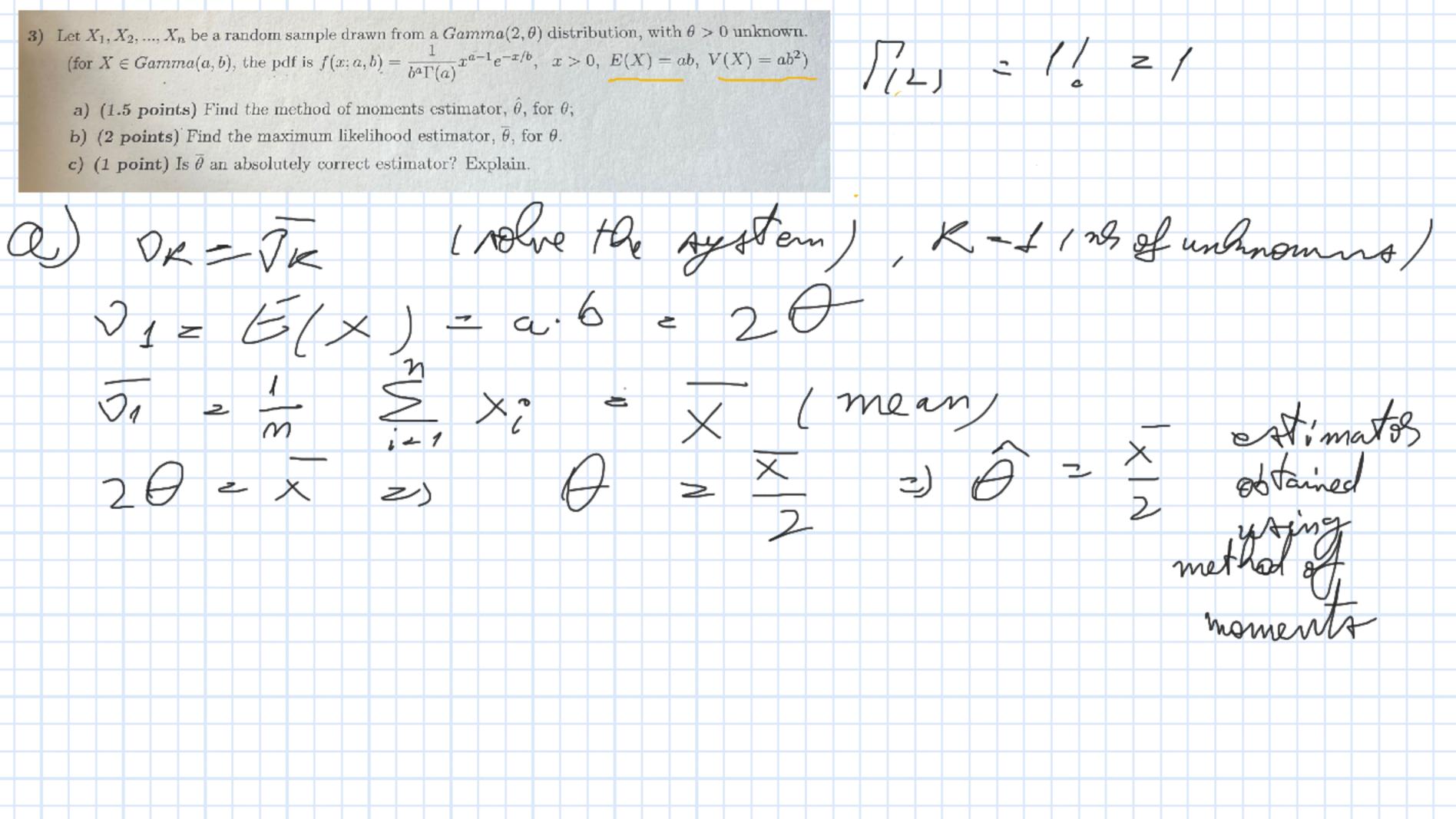
$$C) = \sum_{\lambda_1 \uparrow_{N}} \lambda_1 \uparrow_{N} = 0.1 + \sum_{\lambda_2 \uparrow_{N}} + \sum_{\lambda_3 \uparrow_{N}} \frac{31}{20}$$

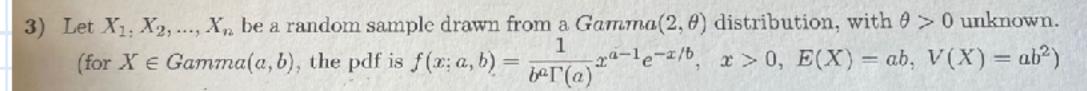
2) (2 points) The pdf of the random variable X is given by $f_X(x) = 2e^{-2x}$, x > 0. Find the pdf of $Y = \frac{1}{2}X - 1$.

$$g(x) = \frac{1}{2}x - 1$$
 $g'(y) = \frac{1}{2}z$
 $g'(y) =$

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$$f_{y|y}$$
 = $f_{x}(g^{-1}(y))$, $g_{y}(R)$
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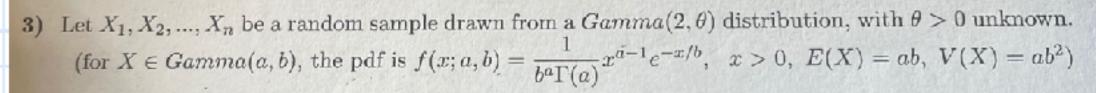


- a) (1.5 points) Find the method of moments estimator, $\hat{\theta}$, for θ ;
- b) (2 points) Find the maximum likelihood estimator, $\overline{\theta}$, for θ .
- c) (1 point) Is $\bar{\theta}$ an absolutely correct estimator? Explain.

b)
$$\partial C_{n}L(x_{1},0.0,x_{9}) = 0$$

$$L(x_{1},...,x_{n}) = 0$$

$$L(x_{1},.$$



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