

PYQSide

JEE MAIN PROBABILITY (CLASS 12) — VARIANCE OF A RANDOM VARIABLE (OLD SYLLABUS) — PYQS

Max. Marks: 12

Questions: 3

Section A (MCQ)

- Q.1** A random variable X takes values 0, 1, 2, 3 with probabilities $\frac{2a+1}{30}$, $\frac{8a-1}{30}$, $\frac{4a+1}{30}$, b respectively, where $a, b \in \mathbb{R}$.
Let μ and σ respectively be the mean and standard deviation of X such that $\sigma^2 + \mu^2 = 2$.
Then $\frac{a}{b}$ is equal to:

[JEE Main 2026 (Online) 21st January Evening Shift]

- (1) 12 (2) 60 (3) 30 (4) 3

Scan or tap for the full solution



- Q.2** A box contains 10 pens of which 3 are defective. A sample of 2 pens is drawn at random and let X denote the number of defective pens. Then the variance of X is

[JEE Main 2025 (Online) 4th April Morning Shift]

- (1) $\frac{11}{15}$ (2) $\frac{2}{15}$ (3) $\frac{3}{5}$ (4) $\frac{28}{75}$

Scan or tap for the full solution



- Q.3** Three defective oranges are accidentally mixed with seven good ones and on looking at them, it is not possible to differentiate between them. Two oranges are drawn at random from the lot. If x denotes the number of defective oranges, then the variance of x is

[JEE Main 2025 (Online) 28th January Morning Shift]

- (1) $26/75$ (2) $14/25$ (3) $18/25$ (4) $28/75$

Scan or tap for the full solution



ANSWER KEY

Ques.	1	2	3									
Ans.	2	4	4									