BIT Quiz 3

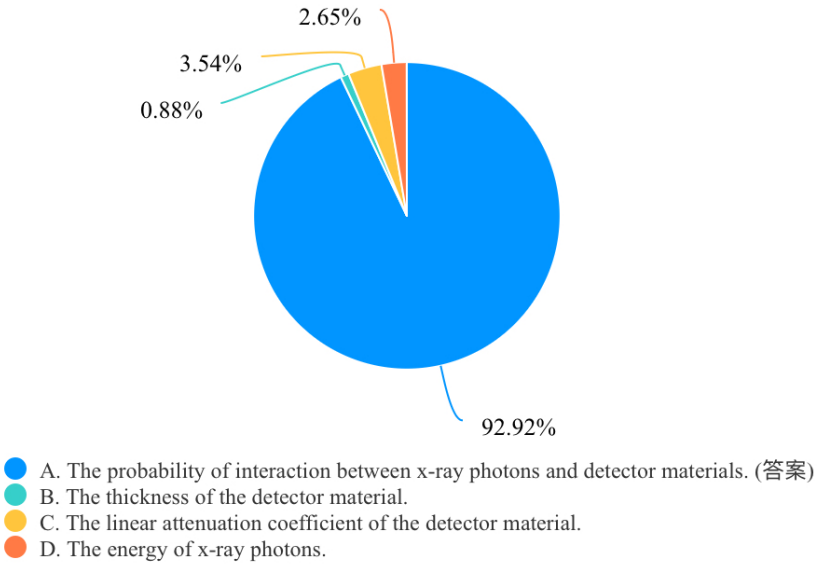
姓名: [填空题]

学号: [填空题]

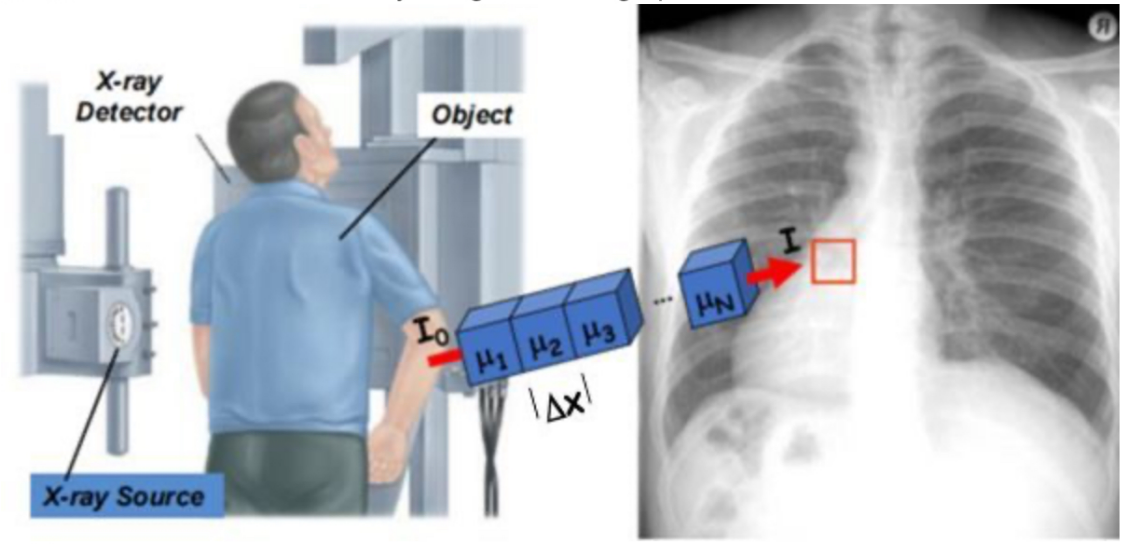
第1题: Question1: What does the term “quantum efficiency” refer to in the context of x-ray detection? [单选题]

正确率: 92.92%

选项	小计	比例
A. The probability of interaction between x-ray photons and detector materials. (答案)	105	92.92%
B. The thickness of the detector material.	1	0.88%
C. The linear attenuation coefficient of the detector material.	4	3.54%
D. The energy of x-ray photons.	3	2.65%



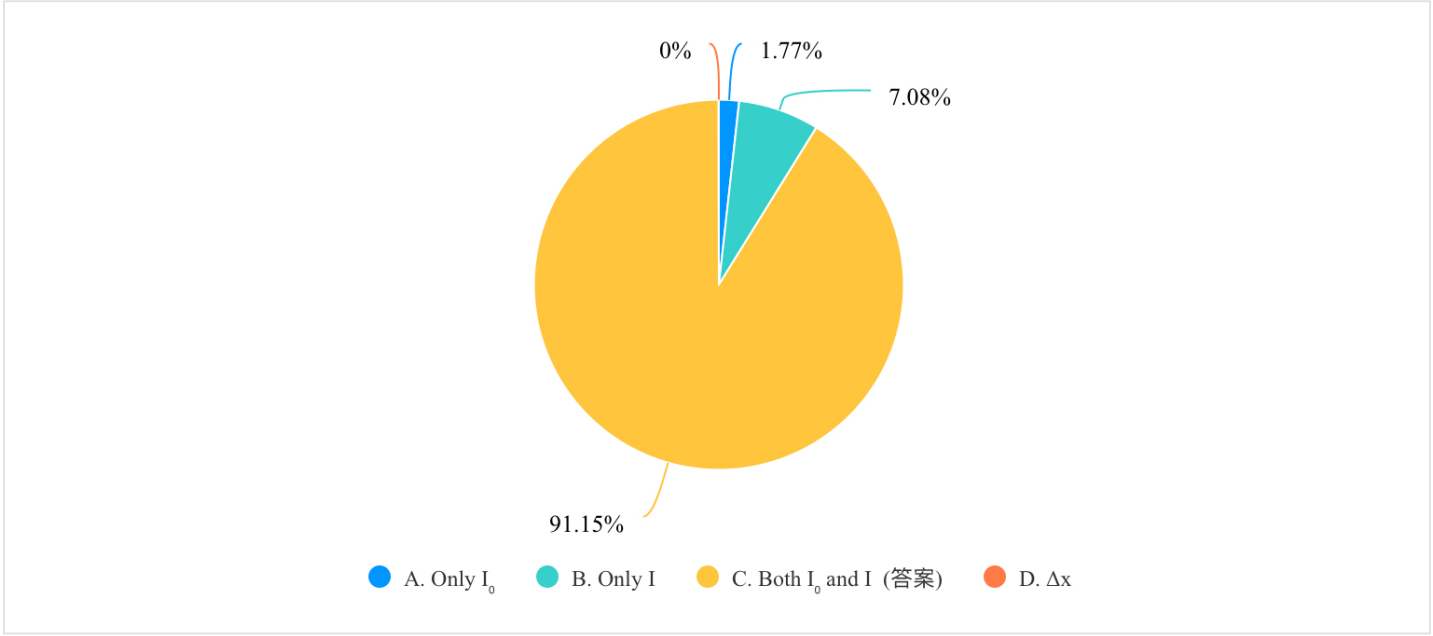
第2题: Question2 : In an X-ray image, the image pixel values are derived from which of the following?



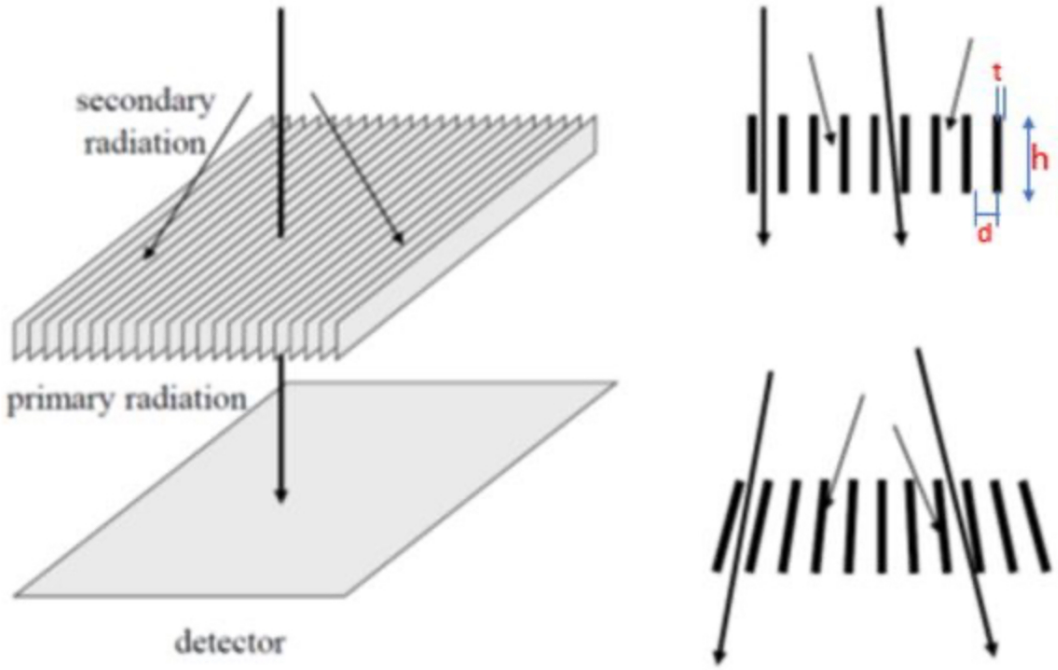
[单选题]

正确率: 91.15%

选项	小计	比例
选项	小计	比例
A. Only I_0	2	1.77%
B. Only I	8	7.08%
C. Both I_0 and I (答案)	103	91.15%
D. Δx	0	0%



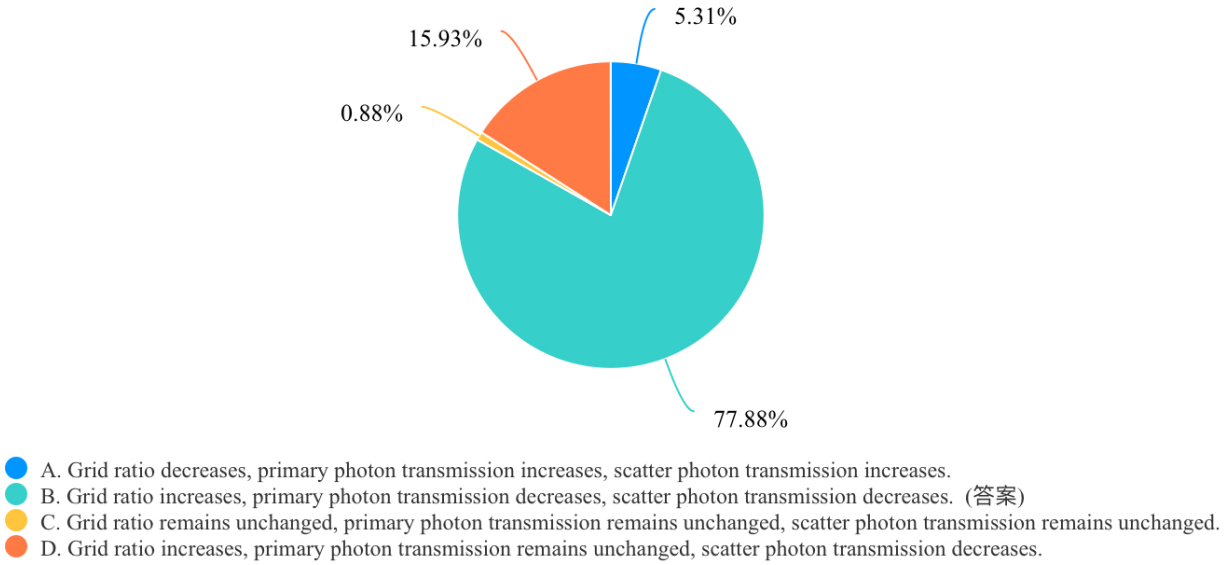
第3题： Question3: When the height of the Anti-Scatter Grid (ASG) is doubled, how do the Grid ratio, primary photon transmission, and scatter photon transmission change?



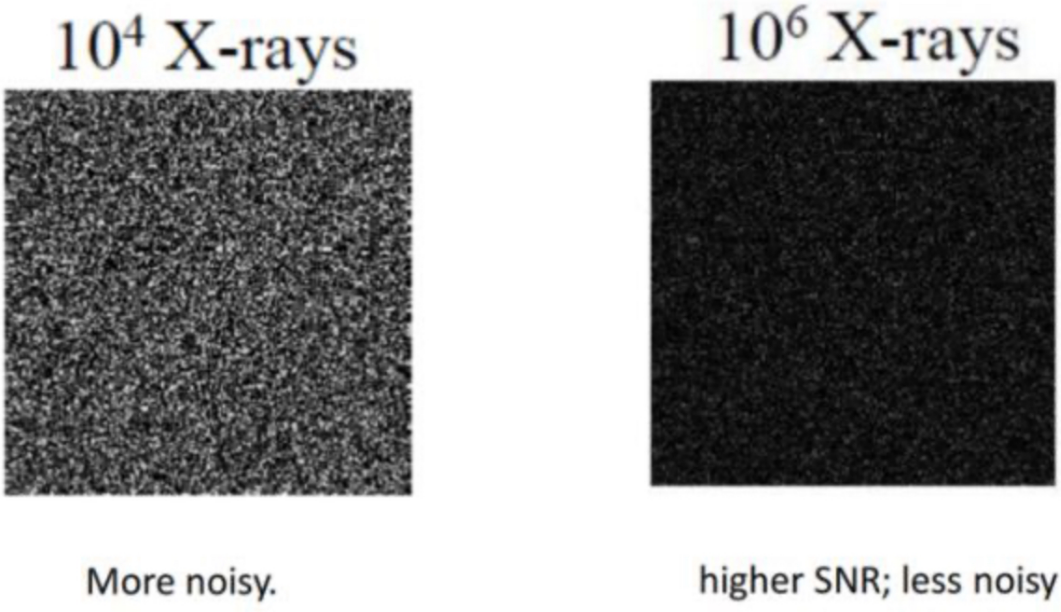
[单选题]

正确率： 77.88%

选项	小计	比例
A. Grid ratio decreases, primary photon transmission increases, scatter photon transmission increases.	6	5.31%
B. Grid ratio increases, primary photon transmission decreases, scatter photon transmission decreases. (答案)	88	77.88%
C. Grid ratio remains unchanged, primary photon transmission remains unchanged, scatter photon transmission remains unchanged.	1	0.88%
D. Grid ratio increases, primary photon transmission remains unchanged, scatter photon transmission decreases.	18	15.93%



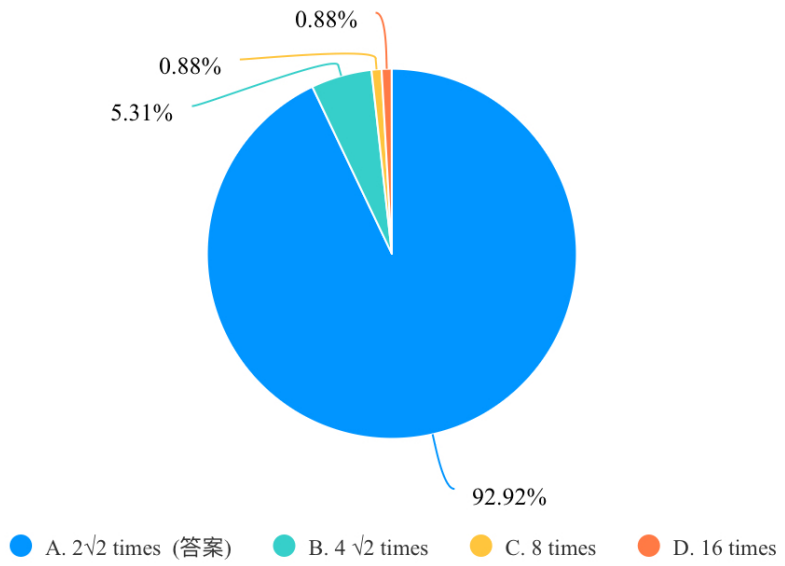
第4题： Question4 : As shown in the figure, increasing the X-ray dose can improve the Signal-to-Noise Ratio (SNR). Assuming the dose is increased by a factor of 8, theoretically, by how much can the SNR be improved?



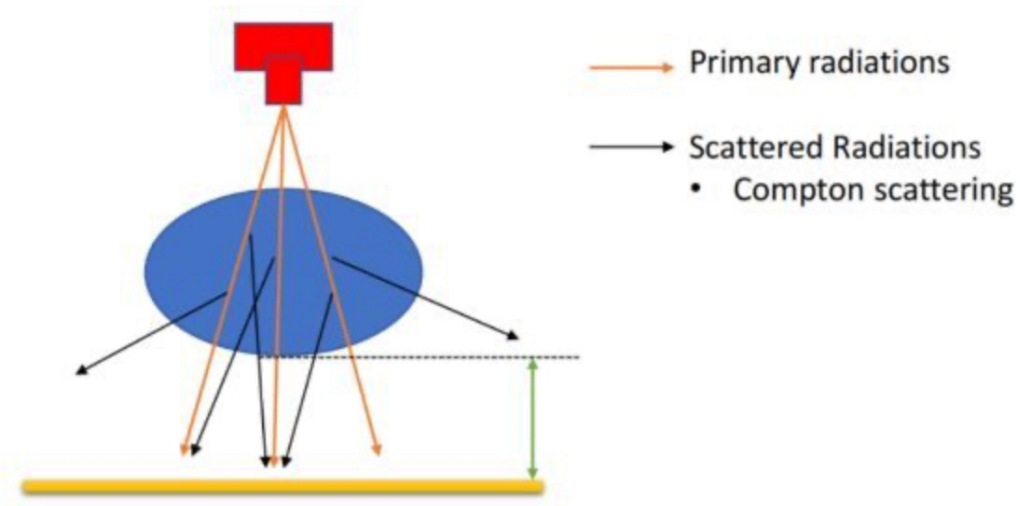
[单选题]

正确率： 92.92%

选项	小计	比例
A. 2√2 times (答案)	105	92.92%
B. 4 √2 times	6	5.31%
C. 8 times	1	0.88%
D. 16 times	1	0.88%



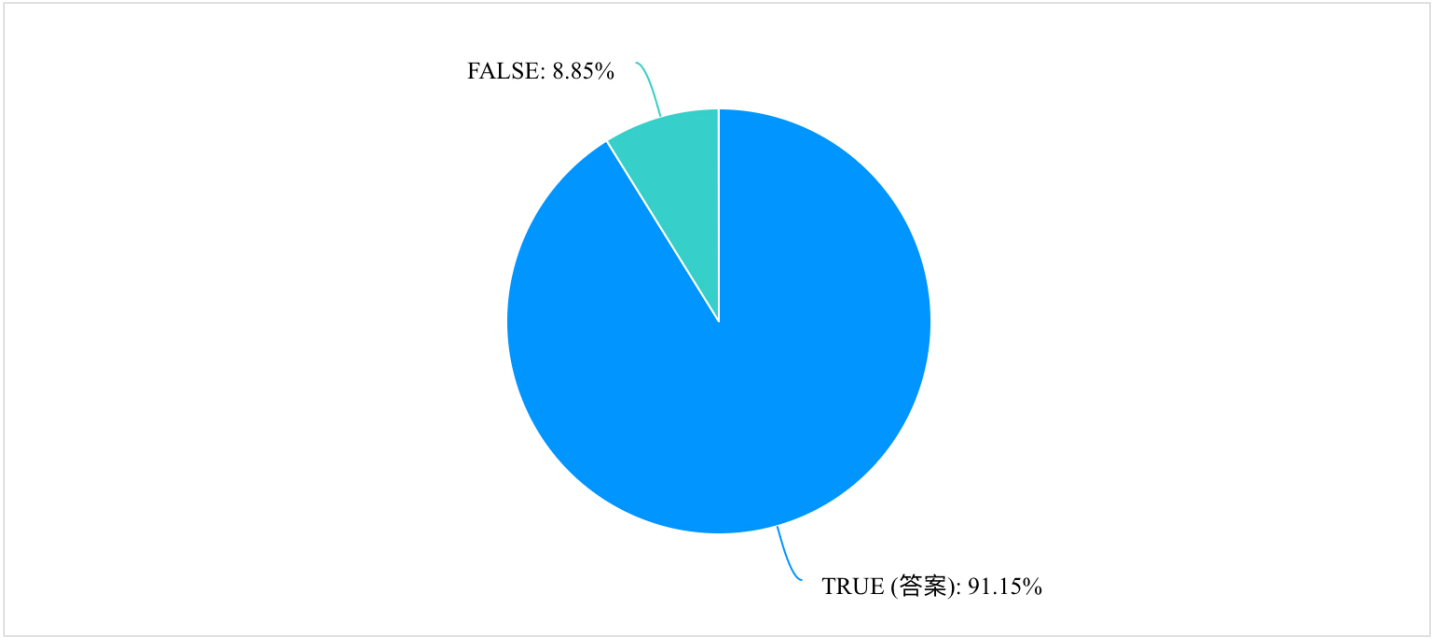
第5题： Question5: When using the air gap technique, increasing the air gap will reduce the amount of scattered radiation.



[单选题]

正确率： 91.15%

选项	小计	比例
TRUE (答案)	103	91.15%
FALSE	10	8.85%


FALSE: 8.85%
TRUE (答案): 91.15%