¡¢

1.C

2.B

. $\min(X,2) \in (0,2]$, $y \in (0,2]$,

$$F_Y(y) = P(\min(X,2) \leq y) = P(X \leq y) = 1 - e^{-\lambda x}.$$

Yµķ ¼

$$F_Y(y) = \begin{cases} 0 & y <= 0 \\ 1 - e^{-\lambda x} & 0 < y \leq 2 \\ 1 & y > 2. \end{cases}$$

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1. $\frac{9}{64}$

2. $\frac{4\sqrt{2}}{\Gamma(\frac{5}{2})}$.

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1.(1)

$$P(|X| < 1.8) = \frac{1.8 \times 2}{4} = 90\%.$$

(2)

$$P = 1 - C_{10}^0 (90\%)^0 (10\%)^1 0 - C_{10}^1 (90\%)^1 (10\%)^9 = 1 - 1.9 \times 10^{-9}.$$

(3)

$$P(|X| > 1.8) = \frac{0.2 \times 2}{4} = 0.1.$$

$$\lambda = 100 \times 0.1 = 10.$$

$$P = 1 - \frac{10^0}{0!} e^{-10} - \frac{10^1}{1!} e^{-10} = 1 - 11e^{-10}$$

2.(1) ¸ ¾ ¯ µĹ 浗 :

$$\int_{-\infty}^{+\infty} \frac{A}{e^x + e^{-x}} dx = 1$$

$$A \int_{-\infty}^{\infty} \frac{e^x e^{-x}}{e^x + e^{-x}} dx = 1$$