

Name _____

AB Keplaw 4

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- ① The area of the region bounded by the lines $x=0$, $x=2$, and $y=0$ and the curve $y=e^{\frac{x}{2}}$ is
- (A) $\frac{e-1}{2}$ (B) $e-1$ (C) $2(e-1)$ (D) $2e-1$ (E) $2e$

- ② The number of bacteria in a culture is growing at a rate of $3000e^{\frac{2t}{5}}$ per unit of time t . At $t=0$, the number of bacteria present was 7,500. Find the number present at $t=5$.
- (A) $1,200e^2$ (B) $3,000e^2$ (C) $7,500e^2$ (D) $7,500e^5$ (E) $\frac{15,000}{7}e^7$

- ③ What is the area of the region completely bounded by the curve $y=-x^2+x+6$ and the line $y=4$?
- (A) $\frac{3}{2}$ (B) $\frac{7}{3}$ (C) $\frac{9}{2}$ (D) $\frac{31}{6}$ (E) $\frac{33}{2}$

- ④ $\frac{d}{dx}(\arcsin 2x) =$
- (A) $\frac{-1}{2\sqrt{1-4x^2}}$ (B) $\frac{-2}{\sqrt{4x^2-1}}$ (C) $\frac{1}{2\sqrt{1-4x^2}}$
- (D) $\frac{2}{\sqrt{1-4x^2}}$ (E) $\frac{2}{\sqrt{4x^2-1}}$

- ⑤ If the velocity of a particle moving along the x -axis is $v(t) = 2t - 4$ and if at $t=0$ its position is 4, then at any time t its position $x(t)$ is
- (A) $t^2 - 4t$ (B) $t^2 - 4t - 4$ (C) $t^2 - 4t + 4$ (D) $2t^2 - 4t$ (E) $2t^2 - 4t + 4$