

17. The area of the first quadrant region bounded above by the graph of  $y = 4x^3 + 6x - \frac{1}{x}$  between the inputs  $x = 1$  and  $x = 2$  is

(A)  $32 - \ln 2$

(B)  $30 - \ln 2$

(C)  $24 - \ln 2$

(D)  $\frac{99}{4}$

(E) 21

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7. The area of the region bounded below by  $f(x) = x^2 - 7x + 10$  and above by  $g(x) = \ln(x - 1)$  is closest to
- (A) 7.350
  - (B) 7.360
  - (C) 7.380
  - (D) 7.400
  - (E) 7.420

Ans

9. The area of the region completely bounded by the curve  $y = -x^2 + 2x + 4$  and the line  $y = 1$  is

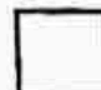
- (A) 9.767
- (B) 10.217
- (C) 10.667
- (D) 11.117
- (E) 11.567

Ans



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7. The area of the first quadrant region bounded by the  $y$ -axis, the line  $y = 4 - x$  and the graph of  $y = x - \cos x$  is approximately
- (A) 4.520      (B) 4.538      (C) 4.556      (D) 4.574      (E) 4.939

Ans



17. The area of the region bounded by the lines  $x = 1$  and  $y = 0$  and the curve  $y = xe^{x^2}$  is

(A)  $1 - e$

(B)  $e - 1$

(C)  $\frac{e - 1}{2}$

(D)  $\frac{1 - e}{2}$

(E)  $\frac{e}{2}$

Ans



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4. The area of the first quadrant region bounded by the curve  $y = e^{-x}$ , the  $x$ -axis, the  $y$ -axis and the line  $x = 2$  is equal to

(A) 1

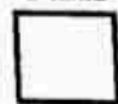
(B) 2

(C)  $\ln e^x$

(D)  $\frac{1}{e^2} - 1$

(E)  $1 - \frac{1}{e^2}$

Ans



5. The region bounded by the  $x$ -axis and the part of the graph of  $y = \sin x$  between  $x = 0$  and  $x = \pi$  is separated into two regions by the line  $x = k$ . If the area of the region for  $0 \leq x \leq k$  is one-third the area of the region for  $k \leq x \leq \pi$ , then  $k =$

(A)  $\arcsin \frac{1}{3}$

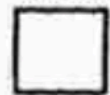
(B)  $\arcsin \frac{1}{4}$

(C)  $\frac{\pi}{6}$

(D)  $\frac{\pi}{3}$

(E)  $\frac{\pi}{4}$

Ans



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17. The area of the region bounded by the graphs of  $y = \arctan x$  and  $y = 4 - x^2$  is approximately

(A) 10.955

(B) 10.972

(C) 10.989

(D) 11.000

(E) 11.023



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25. A region in the plane is bounded by the graph of  $y = \frac{1}{x}$ , the  $x$ -axis, the line  $x = m$  and the line  $x = 3m$ ,  $m > 0$ . The area of this region

- (A) is independent of  $m$
- (B) increases as  $m$  increases
- (C) decreases as  $m$  increases
- (D) decreases for all  $m < \frac{1}{3}$
- (E) increases for all  $m < \frac{1}{3}$