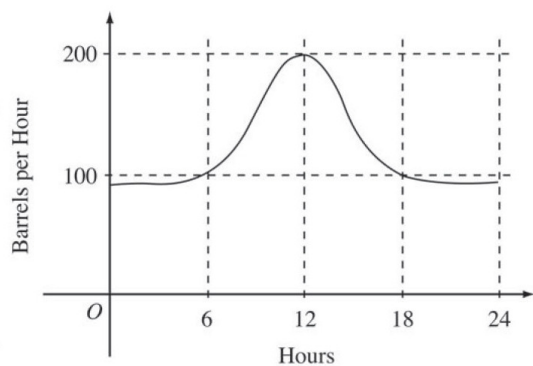


1)



The flow of oil, in barrels per hour, through a pipeline on July 9 is given by the graph shown above. Of the following, which best approximates the total number of barrels of oil that passed through the pipeline that day?

- (A) 500 (B) 600 (C) 2,400 (D) 3,000 (E) 4,800

2)

If f is a linear function and $0 < a < b$, then $\int_a^b f''(x) dx =$

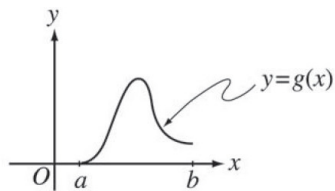
- (A) 0 (B) 1 (C) $\frac{ab}{2}$ (D) $b - a$ (E) $\frac{b^2 - a^2}{2}$

3)

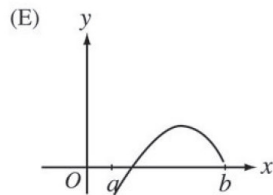
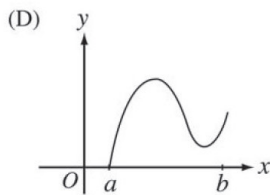
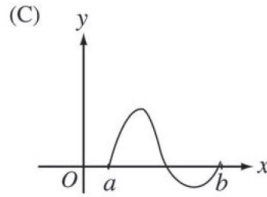
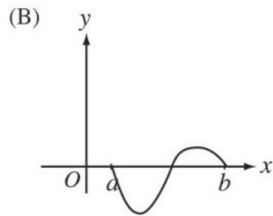
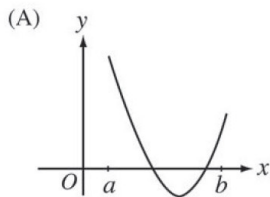
If $F(x) = \int_0^x \sqrt{t^3 + 1} dt$, then $F'(2) =$

- (A) -3 (B) -2 (C) 2 (D) 3 (E) 18

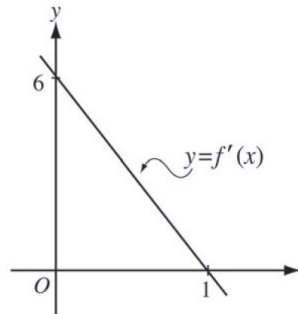
4)



Let $g(x) = \int_a^x f(t) dt$, where $a \leq x \leq b$. The figure above shows the graph of g on $[a, b]$. Which of the following could be the graph of f on $[a, b]$?



5)



The graph of f' , the derivative of f , is the line shown in the figure above. If $f(0) = 5$, then $f(1) =$

- (A) 0 (B) 3 (C) 6 (D) 8 (E) 11

6)

The rate of change of the altitude of a hot-air balloon is given by $r(t) = t^3 - 4t^2 + 6$ for $0 \leq t \leq 8$. Which of the following expressions gives the change in altitude of the balloon during the time the altitude is decreasing?

(A) $\int_{1.572}^{3.514} r(t) dt$

(B) $\int_0^8 r(t) dt$

(C) $\int_0^{2.667} r(t) dt$

(D) $\int_{1.572}^{3.514} r'(t) dt$

(E) $\int_0^{2.667} r'(t) dt$