

## 5.1 Antiderivatives and Indefinite Integrals

Find the integral.

1)  $\int 3 \, dx$  1) \_\_\_\_\_

A)  $\frac{3}{2}x^2 + C$

B) 0

C)  $3 + C$

D)  $3x + C$

2)  $\int (3x^8 - 7x^3 + 6) \, dx$  2) \_\_\_\_\_

A)  $\frac{1}{3}x^9 - \frac{7}{4}x^4 + 6x + C$

B)  $9x^9 - \frac{7}{3}x^4 + 6x + C$

C)  $\frac{1}{3}x^9 - \frac{7}{3}x^4 + 6x + C$

D)  $9x^9 - \frac{7}{4}x^4 + 6x + C$

3)  $\int 13x^{-7} \, dx$  3) \_\_\_\_\_

A)  $\left(\frac{13}{6x}\right)^8 + C$

B)  $\left(\frac{78}{x}\right)^6 + C$

C)  $-91x^{-8} + C$

D)  $-\frac{13}{6}x^{-6} + C$

4)  $\int \left[5e^x - \frac{1}{x}\right] \, dx$  4) \_\_\_\_\_

A)  $5xe^x - \ln|x| + C$

B)  $5e^x - \frac{1}{2x^2} + C$

C)  $5e^x - \frac{2}{x^2} + C$

D)  $5e^x - \ln|x| + C$

5)  $\int \frac{6 + x^2}{x} \, dx$  5) \_\_\_\_\_

A)  $\frac{3}{x^2} + x^2 + C$

B)  $6 \ln|x| + \frac{1}{3}x^3 + C$

C)  $6 \ln|x| + \frac{1}{2}x^2 + C$

D)  $\frac{6}{x^2} + x^2 + C$

6)  $\int 9e^{0.2x} \, dx$  6) \_\_\_\_\_

A)  $\frac{9e^{0.2x} + 1}{0.2x + 1} + C$

B)  $9e^{0.2x} + C$

C)  $18e^{0.2x} + C$

D)  $45e^{0.2x} + C$

Provide an appropriate response.

7) Find  $f(x)$  if  $f'(x) = \frac{7}{x^4}$  and  $f(1) = 4$ .

Solve the problem.

8) The rate of change in a person's body temperature, with respect to the dosage of  $x$  milligrams of a drug, is given by  $D'(x) = \frac{4}{x+7}$ . One milligram raises the temperature  $3.5^\circ\text{C}$ . Find the function giving the total change.

Answer Key

Testname: PRACTICE06

1) D

2) A

3) D

4) D

5) C

6) D

7)  $f(x) = -\frac{7}{3}x^{-3} + \frac{19}{3}$

8)  $D(x) = 4 \ln |x + 7| - 4.8$