

No calculators will be allowed and no partial credit will be given.

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1. Express the indefinite integral  $\int 2 (\cos(x))^3 \sin(x) dx$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
2. Express the indefinite integral  $\int 2 (\cos(x))^5 (\sin(x))^2 dx$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
3. Express in simplified form the value of  $\int_{\frac{\pi}{2}}^{\pi} 2 (\cos(x))^3 (\sin(x))^3 dx$ .
4. Express in simplified form the value of  $\int_0^{\frac{\pi}{2}} 5 \cos(x) (\sin(x))^4 dx$ .
5. Express the indefinite integral  $\int 2 (\cos(t))^3 \sqrt{\sin(t)} dt$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
6. Express the indefinite integral  $\int 2 \sqrt{\cos(t)} (\sin(t))^3 dt$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.
7. Express in simplified form the value of  $\int_0^{\frac{\pi}{2}} 4 \cos(x) \sqrt{\sin(x)} dx$ .
8. Express in simplified form the value of  $\int_0^{\frac{\pi}{2}} 2 \sqrt{\cos(x)} (\sin(x))^3 dx$ .
9. Express the indefinite integral  $\int 2 (\cos(t))^2 (\sin(t))^2 dt$  in terms of elementary functions. Use the symbol C to denote an arbitrary constant.

1.  $-\frac{(\cos(x))^4}{2} + C$

2.  $\frac{2(\sin(x))^7}{7} - \frac{4(\sin(x))^5}{5} + \frac{2(\sin(x))^3}{3} + C$

3.  $-\frac{1}{6}$

4. 1

5.  $\frac{4(\sin(t))^{\frac{3}{2}}}{3} - \frac{4(\sin(t))^{\frac{7}{2}}}{7} + C$

6.  $\frac{4(\cos(t))^{\frac{7}{2}}}{7} - \frac{4(\cos(t))^{\frac{3}{2}}}{3} + C$

7.  $\frac{8}{3}$

8.  $\frac{16}{21}$

9.  $\frac{t}{4} - \frac{\sin(4t)}{16} + C$