The Substitution Rule- HW Problems

Evaluate the integrals using the substitution given.

1. $\int(\sin^4(x))(\cos(x))dx, \quad u = \sin(x)$
2. $\int x^7(1+x^8)^{\frac{1}{3}}dx, \quad u = 1+x^8$

Evaluate the indefinite integrals.

3. $\int 2x(\cos(x^2))dx$
4. $\int x\sqrt{1+x^2}dx$
5. $\int \frac{x}{(1+x^2)^4}dx$
6. $\int \frac{6x^2}{\sqrt{1-x^3}}dx$
7. $\int \frac{3\sin(x)}{(1+\cos(x))^3}dx$
8. $\int(\tan^4(x))\,(\sec^2(x))dx$
9. $\int \frac{\cos(\sqrt{\theta})}{\sqrt{\theta}}d\theta$
10. $\int x\sqrt{x+3}dx$
11. $\int \frac{x}{\sqrt{7-x}}dx$
12. $\int(t+1)\sin(t^2+2t-4)\,dt$

Evaluate the definite integrals.

13. $\int_0^1 \sqrt{2+5x}dx$

14. $\int_0^3 x\sqrt{x^2+1}dx$

15. $\int_0^{\sqrt[3]{\pi}} (t^2)(\sin(t^3))dt$

16. $\int_1^4 \frac{x}{\sqrt{5x-4}}dx$

17. $\int_1^3 (2t-3)^3 dt$

18. $\int_0^{\frac{\pi}{2}} 2\cos^2(x)dx$

19. $\int_0^{2\pi} 4\sin^2(x)dx$