More Substitution

Use the hints to integrate.

1. $\int x^2\sqrt{x+1}dx$ [u = x + 1]

2. $\int \frac{x+1}{1+x^2}dx$ [Write as two integrals.]

3. $\int \frac{1}{\sqrt{9-4x^2}}dx$ [$2x = 3\sin\theta$]

Choose an appropriate integration method.

4. $\int \frac{x}{\sqrt{x+4}}dx$

5. $\int_0^{\sqrt{3}/2} \frac{t^2}{\left(1-t^2\right)^{3/2}}dt$

6. $\int \sqrt{16-49x^2}dx$

7. $\int e^{2x}\sqrt{1+e^{2x}}dx$

8. $\int \frac{\ln(x+1)}{x+1}dx$

9. $\int \frac{2x-5}{4x^2}dx$

10. $\int_0^3 \frac{x^3}{\sqrt{x^2+9}}dx$

11. $\int_0^{3/5} \sqrt{9-25x^2}dx$

If you want a challenge: evaluate the integral using substitution first, then using trig substitution.

12. $\int e^x\sqrt{1-e^{2x}}dx$

13. $\int (x+1)\sqrt{x^2+2x+2}dx$