Use substitution to find the following integrals:

1. $\int 2x\sqrt{x^2+3}\,dx$

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

2. $\int 5\cos(3x)\,dx$

$\frac{5}{3}\sin(3x)+C$

3. $\int 7x^2\sin(4x^3)\,dx$

$-\frac{7}{12}\cos(4x^3)+C$

4. $\int e^{2x+3}\,dx$

$\frac{1}{2}e^{2x+3}+C$

5. $\int xe^{-x^2/2}\,dx$

$-e^{-x^2/2}+C$

6. $\int \frac{x+2}{x^2+4x}\,dx$

$\frac{1}{2}\ln|x^2+4x|+C$

7. $\int \frac{3}{x+4}\,dx$

$3\ln(x+4)+C$

8. $\int \frac{1}{5-x}\,dx$

$-\ln(5-x)+C$

9. $\int \sqrt{x+3}\,dx$

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

10. $\int \sqrt{4-x}\,dx$

$-\frac{2}{3}(4-x)^{3/2}+C$

11. $\int x\sqrt{x^2-1}\,dx$

$\frac{1}{3}(x^2-1)^{3/2}+C$

12. $\int (x^2-2)\sqrt{x^3-6x+3}\,dx$

$\frac{2}{9}(x^3-6x+3)^{3/2}+C$

13. $\int \sin(\frac{3\pi}{2}x+\frac{\pi}{4})\,dx$

$-\frac{2}{3\pi}\cos\left(\frac{3\pi}{2}x+\frac{\pi}{4}\right)+C$

14. $\int \cos(2x-1)\,dx$

$\frac{1}{2}\sin(2x-1)+C$

15. $\int (4x-3)\sqrt{2x^2-3x+2}\,dx$

$\frac{2}{3}(2x^2-3x+2)^{3/2}+C$

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

10.2076

17. $\int_1^2 x^2\sqrt{x^3+2}\,dx$

5.87258

18. $\int_2^3 \frac{2x+3}{(x^2+3x)^3}\,dx$

0.003457

19. $\int_0^2 \frac{2x}{\sqrt{4x^2+3}}\,dx$

1.31342

20. $\int_2^5 (x-2)e^{-1/2(x-2)^2}\,dx$

0.988891

21. $\int_{\ln 4}^{\ln 7} \frac{e^x}{(e^x-3)^2}\,dx$

-0.75

22. $\int_0^{\pi/3} \sin x\cos x\,dx$

0.375

23. $\int_{-\pi/6}^{\pi/6} \sin^2 x\cos x\,dx$

0.083333