Review of Calculus 1 Integrals

Find the integrals:

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

(2).
$$\int \frac{1}{(x+1)^2}\, dx.$$

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

(4).
$$\int \frac{x+1}{(x^2 + 2x)^3}\, dx.$$

(5).
$$\int \sqrt{4x - 1}\, dx.$$

(6).
$$\int x^2\sqrt{4x - 1}\, dx.$$

(7).
$$\int xe^{-x^2}\, dx.$$

(8).
$$\int \frac{e^t}{e^{2t} + 2e^t + 1}\, dt.$$

(9).
$$\int \sec^2\theta e^{\tan\theta}\, d\theta.$$

(10).
$$\int \sin^2 x \cos x\, dx.$$

(11).
$$\int \tan x\, dx.$$

(12).
$$\int \cos x \cos(\sin x)\, dx.$$

(13).
$$\int \tan^2 x\, dx.$$

(14).
$$\int \sin^2 x\, dx.$$

(15).
$$\int \cos^2 x\, dx.$$

(16).
$$\int \sin^2 x \cos^2 x\, dx.$$

(17).
$$\int \tan^2 x \sec^2 x\, dx.$$