7.1, #6. $f(x) = \sqrt{x}$, so

$$F(x) = \int \sqrt{x}\, dx = (2/3)x^{3/2} + C.$$

The condition $F(0) = 0$ holds if $C = 0$.

7.1, #8. $f(x) = 5 - (x^6/6) - x^7$, so

$$F(x) = \int (5 - (x^6/6) - x^7)\, dx = 5x - (x^7/42) - (x^8/8) + C.$$

The condition $F(0) = 0$ holds if $C = 0$.

7.1, #9. $f(x) = \sin x$, so

$$F(x) = \int \sin x\, dx = -\cos x + C.$$

The condition $F(0) = 0$ holds if $-1 + C = 0$, or equivalently, $C = 1$.

7.1, #12.

$$\int (x^{3/2} + x^{-3/2})\, dx = (2x^{5/2}/5) - 2x^{-1/2} + C$$

7.1, #14.

$$\int \frac{y^2 + 1}{y}\, dy = \int (y + y^{-1})\, dy = \frac{y^2}{2} + \ln|y| + C.$$

7.1, #16. The derivative of e^x is e^x, but $e^1 = e$, so to satisfy $F(1) = 0$ we need to take $F(x) = e^x - e$.