

Section 7.1: 1-23 odd

$$1. \frac{dy}{dx} = 5x^4 - \sec^2 x \rightarrow y = x^5 - \tan x + C$$

$$3. \frac{dy}{dx} = \sin x - e^{-x} + 8x^3 \rightarrow y = -\cos x + e^{-x} + 2x^4 + C$$

$$5. \frac{dy}{dx} = 5^x \ln 5 + \frac{1}{x^2+1} \rightarrow y = 5^x + \tan^{-1} x + C$$

$$7. \frac{dy}{dx} = 3t^2 \cdot \cos(t^3) \rightarrow y = \sin(t^3) + C$$

$$9. \frac{dy}{dx} = 5x^4 \cdot \sec^2(x^5) \rightarrow y = \tan(x^5) + C$$

$$1. \frac{dy}{dx} = 3\sin x \rightarrow y = -3\cos x + C$$

$$2 = -3\cos 0 + C \rightarrow 2 = -3(1) + C \rightarrow C = 5 \rightarrow y = -3\cos x + 5$$

$$3. \frac{dy}{dx} = 7x^6 - 3x^2 + 5 \rightarrow y = x^7 - x^3 + 5x + C$$

$$1 = 1^7 - 1^3 + 5(1) + C \rightarrow 1 = 5 + C \rightarrow C = -4 \rightarrow y = x^7 - x^3 + 5x - 4$$

$$5. \frac{dy}{dx} = -x^{-2} - 3x^{-4} + 12 \rightarrow y = x^{-1} + x^{-3} + 12x + C$$

$$3 = \frac{1}{1} + \frac{1}{1^3} + 12(1) + C \rightarrow 3 = 14 + C \rightarrow C = -11 \rightarrow y = \frac{1}{x} + \frac{1}{x^3} + 12x - 11$$

$$7. \frac{dy}{dt} = \frac{1}{1+t^2} + 2^t \cdot \ln 2 \rightarrow y = \tan^{-1} t + 2^t + C$$

$$3 = \tan^{-1} 0 + 2^0 + C \rightarrow 3 = 0 + 1 + C \rightarrow C = 2 \rightarrow y = \tan^{-1} t + 2^t + 2$$

$$9. \frac{dy}{dt} = 4\sec t \tan t + e^t + 6t \rightarrow y = 4\sec t + e^t + 3t^2 + C$$

$$5 = 4\sec 0 + e^0 + 0 + C \rightarrow 5 = 4 + 1 + C \rightarrow C = 0 \rightarrow y = 4\sec t + e^t + 3t^2$$

$$21. \frac{dy}{dx} = \sin x^2, y = 5 \text{ when } x = 1 \rightarrow y = \int_1^x \sin t^2 dt + 5$$

$$23. F'(x) = e^{\cos x}, F(2) = 9 \rightarrow F(x) = \int_2^x e^{\cos t} dt + 9$$