6.2 Even Answers

2) $\frac{1}{4}\sin(2x^2)+C$ 4) $(7x-2)^4+C$ 6) $-6\sqrt{1-r^3}+C$

8) $\frac{2}{3}(y^4+4y^2+1)^3$ 10) $\tan(x+2)+C$ 12) $\sec(\theta+\frac{\pi}{2})+C$

14) $\frac{2}{3}$ 30) $-\ln|\csc x+\cot x|+C$ 32) $\frac{1}{3}$

34) 0 36) 0 38) $\frac{3}{4}$ 40) $y=\left[\tan^{-1}\left(\frac{x^2}{4}+C\right)\right]^2$

42) $y=\ln(e^x+C)$ 44) $y=(\ln x)^4$

Suggestion for #30

$$\int \csc x\left(\frac{\csc x+\cot x}{\csc x+\cot x}\right)dx = \int \frac{\csc^2 x+\csc x\cot x}{\csc x+\cot x}\,dx$$

multiply top and bottom by $\csc x+\cot x$ as the book says

now let $u=\csc x+\cot x$ and go from there

Answers #32-38 even

32) $\frac{1}{3}$ 34) 0 36) 0 38) $\frac{3}{4}$

Suggestions for #40, 42, 44

40) $\frac{dy}{dx} = x\sqrt{y}\cos^2\sqrt{y} \Rightarrow \frac{dy}{\sqrt{y}\cos^2\sqrt{y}} = x\,dx \Rightarrow$

Separate variables

$\Rightarrow \frac{\sec^2\sqrt{y}}{\sqrt{y}}\,dy = x\,dx \Rightarrow \int \frac{\sec^2\sqrt{y}}{\sqrt{y}}\,dy = \int x\,dx$

now let $u = \sqrt{y}$
and go from there
remember that you are solving for y

42) $\frac{dy}{dx} = e^{x-y} = \frac{e^x}{e^y} \Rightarrow e^y\,dy = e^x\,dx$

separation of variables
now integrate both sides and solve for y.

44) $\frac{dy}{dx} = \frac{4\sqrt{y}\ln x}{x} \Rightarrow \frac{dy}{\sqrt{y}} = \frac{\ln x}{x}\,dx \Rightarrow \int y^{-\frac{1}{2}}\,dy = \int \frac{\ln x}{x}\,dx$

Separate variables

let $u = \ln x$
and go from there