Section 5.4 part D: Some practice with indefinite integrals

1. $I = \int \frac{13}{6} x^{5/6} - 3x^{-5}\, dx$
2. $I = \int 2\cos x + 15 \csc x \cot x\, dx$
3. $I = \int \frac{1}{w} + \frac{1}{1+w^2}\, dw$
4. $I = \int \frac{13}{\sqrt{1-c^2}}\, dc$
5. $I = \int \frac{1}{cabin}\, d(cabin)$

1. $I = \int \frac{13}{6}x^{5/6} - 3x^{-5}\,dx$

$$\begin{aligned} I &= \frac{13}{6}\cdot\frac{6}{11}x^{11/6} - 3\frac{x^{-4}}{-4} + c \\ &= \frac{13}{11}x^{11/6} + \frac{3}{4}x^{-4} + c \end{aligned}$$

2. $I = \int 2\cos x + 15\csc x\cot x\,dx$

$$I = 2\sin x - 15\csc x + c$$

3. $I = \int \frac{1}{w} + \frac{1}{1+w^2}\,dw$

$$I = \ln|w| + \tan^{-1} w + c$$

4. $I = \int \frac{13}{\sqrt{1-c^2}}\,dc$

$$I = 13\sin^{-1} c + d$$

Since the variable is c, we need a different symbol for the constant of integration.

5. $I = \int \frac{1}{cabin}\,d(cabin)$

Remember, we can use whatever variable we want inside the integral, it's just the dummy variable. This is one of the few jokes about integrals that are out there, and it's unbelievably funny ... I mean, it's unbelievable that it's funny:

$$I = \ln(cabin) + c$$