Below is a list of indefinite integrals that you know how to find from your Calculus I class. Evaluate these integrals.

1. $\displaystyle\int x^2\,dx \quad = \frac{x^3}{3} + C$

2. $\displaystyle\int x^n\,dx \qquad \text{for } n \neq -1 \quad = \frac{x^{n+1}}{n+1} + C$

3. $\displaystyle\int \frac{1}{a}\,da \quad = \ln|a| + C$

4. $\displaystyle\int e^\alpha\,d\alpha \quad = e^\alpha + C$

5. $\displaystyle\int 7^q\,dq \quad = \frac{7^q}{\ln 7} + C$

6. $\displaystyle\int b^x\,dx \qquad \text{for } b > 0 \quad = \frac{b^x}{\ln b} + C$

7. $\displaystyle\int \sin\theta\,d\theta \quad = -\cos\theta + C$

8. $\displaystyle\int \cos\phi\,d\phi \quad = \sin\phi + C$

9. $\displaystyle\int \tan w\,dw \quad = \ln|\sec w| + C$

10. $\displaystyle\int \cot v\,dv \quad = \ln|\sin v| + C$

11. $\displaystyle\int \sec^2 u\,du \quad = \tan u + C$

12. $\displaystyle\int \sec y \tan y\,dy \quad = \sec y + C$

13. $\displaystyle\int \csc^2\beta\,d\beta \quad = -\cot\beta + C$

14. $\displaystyle\int \csc r \cot r\,dr \quad = -\csc r + C$

15. $\displaystyle\int \frac{1}{1+\xi^2}\,d\xi \quad = \tan^{-1}\xi + C$

16. $\displaystyle\int \frac{1}{\sqrt{1-\ell^2}}\,d\ell \quad = \sin^{-1}\ell + C$

17. $\displaystyle\int \sqrt{z}(z^2+6z+4)\ dz \quad = \frac{2}{7}z^{\frac{7}{2}} + \frac{12}{5}z^{\frac{5}{2}} + \frac{8}{3}z^{\frac{3}{2}} + C$

18. $\displaystyle\int \frac{6y^8 + 12y^2 - y^6}{3y^7}\ dy \quad = y^2 - y^{-4} - \frac{1}{3}\ln|x| + C$

19. $\displaystyle\int 5e^m + \cos m + m^3\ dm \quad = 5e^m + \sin m + \frac{m^4}{4} + C$

20. $\displaystyle\int \frac{2b}{b^2+7}\ db \quad = \ln|b^2+7| + C$

21. (a) $\displaystyle\int \frac{\sec^2 x + \sec x \tan x}{\sec x + \tan x}\ dx \quad = \ln|\sec x + \tan x| + C$

(b) $\displaystyle\int \frac{\sec x(\sec x + \tan x)}{\sec x + \tan x}\ dx \quad = \ln|\sec x + \tan x| + C$

(c) $\displaystyle\int \sec x\ dx \quad = \ln|\sec x + \tan x| + C$

22. $\displaystyle\int \csc x\ dx \quad = \ln|\csc x - \cot x| + C\ (\text{or } -\ln|\csc x + \cot x| + C)$