

Some Review of Indefinite Integrals

$$-\frac{1}{2} \int -2z \sqrt[3]{1-z^2} dz$$

$$-\frac{1}{2} \int -2z (1-z^2)^{1/3} dz$$

$$-\frac{1}{2} (1-z^2)^{4/3} \cdot \frac{3}{4} \rightarrow$$

$$\boxed{-\frac{3}{8} (1-z^2)^{4/3} + C}$$

$$18) \int (u^2 + 14u + 49)^{35} du$$

$$\int (u+7)^{70} du$$

$$\int (u+7)^{70} du$$

$$\rightarrow \frac{1}{71} (u+7)^{71} + C$$

$$\int e^x (e^x - 1)^7 dx$$

$$\frac{1}{8} (e^x - 1)^8 + C$$

$$25) \int 2^{\log_2 7a} da$$

$$\int 7a da$$

$$\left( \frac{7}{2} a^2 + C \right)$$

$$\text{Let } y = 2^{\log_2 7a}$$

$$\log_2 y = \log_2 2^{\log_2 7a}$$

$$\log_2 y = \log_2 7a \cdot \log_2 2$$

$$\log_2 y = \log_2 7a$$

$$y = 7a$$

$$\log a^b = b \cdot \log a$$

$$\int e^{bx} dx$$

$$\int bx dx$$

$$\left( \frac{b}{2} x^2 + C \right)$$

$$\int 3x^5 + 2x^3 + x^{-2} dx$$

$$\begin{array}{ccc} \downarrow & \downarrow & \downarrow \\ \frac{3}{6}x^6 & + \frac{2}{4}x^4 & + -1x^{-1} \end{array}$$

$$\frac{1}{2}x^6 + \frac{1}{2}x^4 - \frac{1}{x} + C$$

$$\int (x^3 + 1)^2 dx$$

$$\int x^6 + 2x^3 + 1 \cdot dx$$

$$\frac{1}{7}x^7 + \frac{1}{2}x^4 + x + C$$

$$\int \sqrt[7]{x^3} (x-5) dx$$

$$\int x^{\frac{3}{7}} (x-5) dx$$

$$\int x^{\frac{10}{7}} - 5x^{\frac{3}{7}} dx$$

$$\frac{7}{17}x^{\frac{17}{7}} - \frac{35}{10}x^{\frac{10}{7}} + C$$

$$\int (7x^5 - 2x^3 + x) x^{-1/2} dx$$

$$\int 7x^{9/2} - 2x^{5/2} + x^{1/2} dx$$

$$7 \cdot \frac{2}{11} x^{11/2} - 2 \cdot \frac{2}{7} x^{7/2} + \frac{2}{3} x^{3/2}$$

$$\frac{14}{11} x^{11/2} - \frac{4}{7} x^{7/2} + \frac{2}{3} x^{3/2} + C$$