Anti-Derivative Pratice SOLUTIONS!!!
(can't have enough practice)

If you can find the definite/indefinite integrals of the following functions you will be doing great!!!

Indefinite:

(1) $\int 2x^3 - 3x + 5dx = \frac{1}{2}x^4 - \frac{3}{2}x^2 + 5x + c$
(2) $\int 3x^5 - 4x^7 + 6dx = \frac{1}{2}x^6 - \frac{1}{2}x^8 + 6x + c$
(3) $\int (2x+5)e^{x^2+5x}dx = e^{x^2+5x} + c$
(4) $\int \frac{x^2}{x^3+5}dx = \frac{1}{3}\ln(x^3+5) + c$
(5) $\int \frac{1}{(x+2)^4}dx = \frac{-1}{3(x+2)^3} + c$
(6) $\int e^{3x}dx = \frac{1}{3}e^{3x} + c$
(7) $\int \left(3x^4 + \frac{3}{x} + \frac{4x^2}{(x^3-1)^2} + \frac{3x}{e^{x^2}}\right)dx = \frac{3}{5}x^5 + 3\ln(x) + \frac{4}{3(x^3-1)} - 3e^{-x^2} + c$
(8) $\int \frac{1}{x}dx = \ln(x) + c$
(9) $\int \frac{25}{x^2} = \frac{-25}{x} + c$
(10) $\int \left(\frac{3}{x^2} + \frac{2}{\sqrt{x}} + \sqrt{x+3}\right)dx = \frac{-3}{x} + 4\sqrt{x} + \frac{2}{3}(x+3)^{\frac{3}{2}}$

Definite:

(11) $\int_0^1 2x^3 - 3x + 5dx = \frac{1}{2}(1)^4 - \frac{3}{2}(1)^2 + 5(1) - \left(\frac{1}{2}(0)^4 - \frac{3}{2}(0)^2 + 5(0)\right) = 4$
(12) $\int_{-1}^1 (2x+2)e^{x^2+2x+7}dx = e^{2(1)^2+3(1)+7} - e^{(-1)^2-2(-1)+7} = e^{12} - e^{10} = 140728.33$
(13) $\int_2^3 \frac{3}{x^2}dx = \frac{-3}{(3)} - \frac{-3}{(2)} = \frac{1}{2}$
(14) $\int_1^4 \frac{5}{x}dx = 5\ln(4) - 5\ln(1) = 5\ln(4) = 6.93$
(15) $\int_4^7 \left(x^3 + \frac{2x}{x^2+3} + \frac{1}{x}\right)dx = \frac{1}{4}(7)^4 + \ln((7)^2+3) + \ln(7) - \left(\frac{1}{4}(4)^4 + \ln((4)^2+3) + \ln(4)\right) = 537.82$
(16) $\int_{-5}^{10} (x^3 - 7x + 31)dx = \frac{1}{4}(10)^4 - \frac{7}{2}(10)^2 + 31(10) - \left(\frac{1}{4}(-5)^4 - \frac{7}{2}(-5)^2 + 31(-5)\right) = 2371$
(17) $\int_9^{15} \frac{7}{x} = 7\ln(15) - 7\ln(9) = 3.58$
(18) $\int_0^1 e^x dx = e^1 - e^0 = e = 2.71828182846...$
(19) $\int_4^6 xe^{x^2-5}dx = \frac{1}{2}e^{(6)^2-5} - \frac{1}{2}e^{(4)^2-5} = \text{way toooo big}$
(20) $\int_0^1 \frac{x^2}{(x^3+3)^2}dx = \frac{-1}{3((1)^3+2)} - \frac{-1}{3((0)^3+2)} = \frac{1}{6} - \frac{1}{9} = 0.056$