

Name: _____ Score: _____

Teacher: _____ Date: _____

Fundamental Theorem of calculus – Part 2

Evaluate each of the following integrals, if possible. If it is not possible clearly explain why it is not possible to evaluate the integral.

1. $\int_1^6 12x^3 - 9x^2 + 2 dx$ 3250	2. $\int_{-2}^1 5z^2 - 7z + 3 dz$ $\frac{69}{2}$
3. $\int_3^0 15w^4 - 13w^2 + w dw$ $-\frac{1233}{2}$	4. $\int_1^4 \frac{8}{\sqrt{t}} - 12\sqrt{t^3} dt$ $-\frac{664}{5}$
5. $\int_1^2 \frac{1}{7z} + \frac{\sqrt[3]{z^2}}{4} - \frac{1}{2z^3} dz$ $\frac{1}{7}\ln(2) + \frac{3}{20}(2^{\frac{5}{3}}) - \frac{27}{80}$	6. $\int_{-2}^4 x^6 - x^4 + \frac{1}{x^2} dx$ The third term will have a division by zero therefore, this integral cannot be done
7. $\int_{-4}^{-1} x^2 (3 - 4x) dx$ 318	8. $\int_2^1 \frac{2y^3 - 6y^2}{y^2} dy$ 3
9. $\int_0^{\frac{\pi}{2}} 7\sin(t) - 2\cos(t) dt$ 5	10. $\int_0^{\pi} \sec(z) \tan(z) - 1 dz$ $\cos\left(\frac{\pi}{2}\right) = 0$ and $\frac{\pi}{2}$ is in the interval, therefore, this integral cannot be done
11. $\int_{\frac{\pi}{6}}^{\frac{\pi}{3}} 2\sec^2(w) - 8\csc(w) \cot(w) dw$ $\frac{14}{\sqrt{3}} + 2\sqrt{3} - 16$	12. $\int_0^2 e^x + \frac{1}{x^2 + 1} dx$ $e^2 + \tan^{-1}(2) - 1$
13. $\int_{-5}^{-2} 7e^y + \frac{2}{y} dy$ $7(e^{-2} - e^{-5}) + 2(\ln(2) - \ln(5))$	14. $\int_1^{16} \frac{dt}{t^{1/4}}$ $\frac{28}{3}$