Goal This first set is a review of u-substitution. Try to work these **quickly**, but fully justify your solution and always write with correct mathematical grammar.

Reference §4.5 in Stewart, and there is plenty of help available at office hours!

1. $\displaystyle\int \frac{1}{e^{7x}}\,dx$

2. $\displaystyle\int e^{14x}\,dx$

3. $\displaystyle\int e^{1-2x}\,dx$

4. $\displaystyle\int \frac{e^{\sqrt{x}}}{\sqrt{x}}\,dx$

5. $\displaystyle\int e^x \sin\left(e^x\right)\,dx$

6. $\displaystyle\int \cos\left(\frac{x}{5}\right)\,dx$

7. $\displaystyle\int \sec^2\theta \tan^3\theta\,d\theta$

8. $\displaystyle\int (2-3x)^5\,dx$

9. $\displaystyle\int \frac{1}{7-x}\,dx$

10. $\displaystyle\int \frac{1}{\sqrt{7x+5}}\,dx$

11. $\displaystyle\int \frac{1}{(3-5x)^2}\,dx$

12. $\displaystyle\int \frac{1}{2x-1}\,dx$

13. $\displaystyle\int \frac{1}{\sqrt{x}(1+\sqrt{x})^2}\,dx$

14. $\displaystyle\int x\sqrt{7-3x^2}\,dx$

15. $\displaystyle\int \frac{1}{x\ln x}\,dx$

16. $\displaystyle\int \sin(\pi x+1)\,dx$

17. $\displaystyle\int x(1-x)^{79}\,dx$

18. $\displaystyle\int x^3(x+1)^{79}\,dx$

19. $\displaystyle\int \frac{x^2}{\sqrt{3-x}}dx$

20. $\displaystyle\int_0^{\ln 2} \frac{1}{e^{3x}\left(2-e^{-3x}\right)^2}dx$

Note This one has limits of integration!