Brief solutions to selected problems in homework 11

1. Section 15.4: Solutions, common mistakes and corrections:

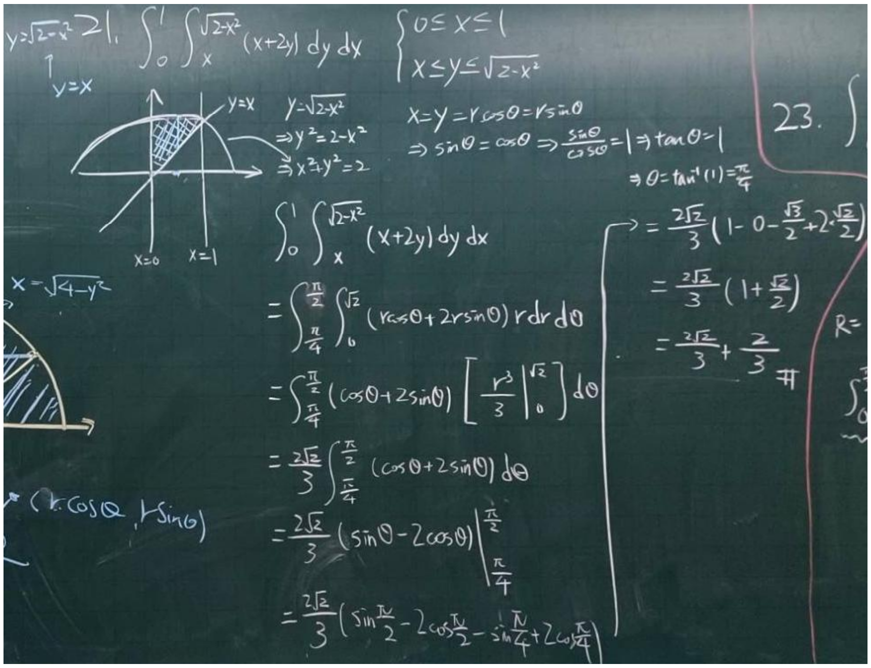


Figure 1: Solution to Section 15.4, problem 21

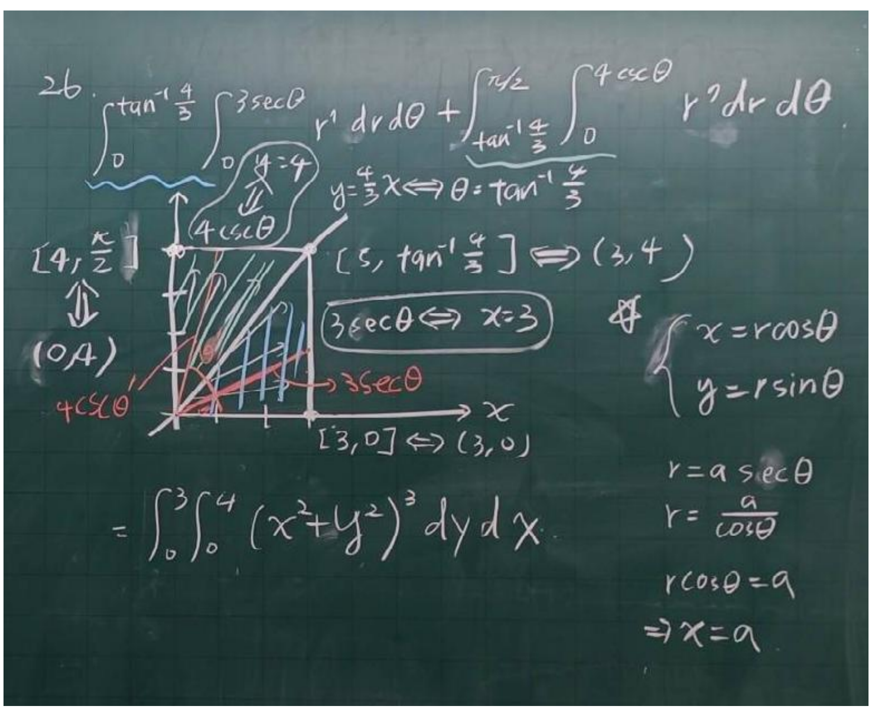


Figure 2: Solution to Section 15.4, problem 26

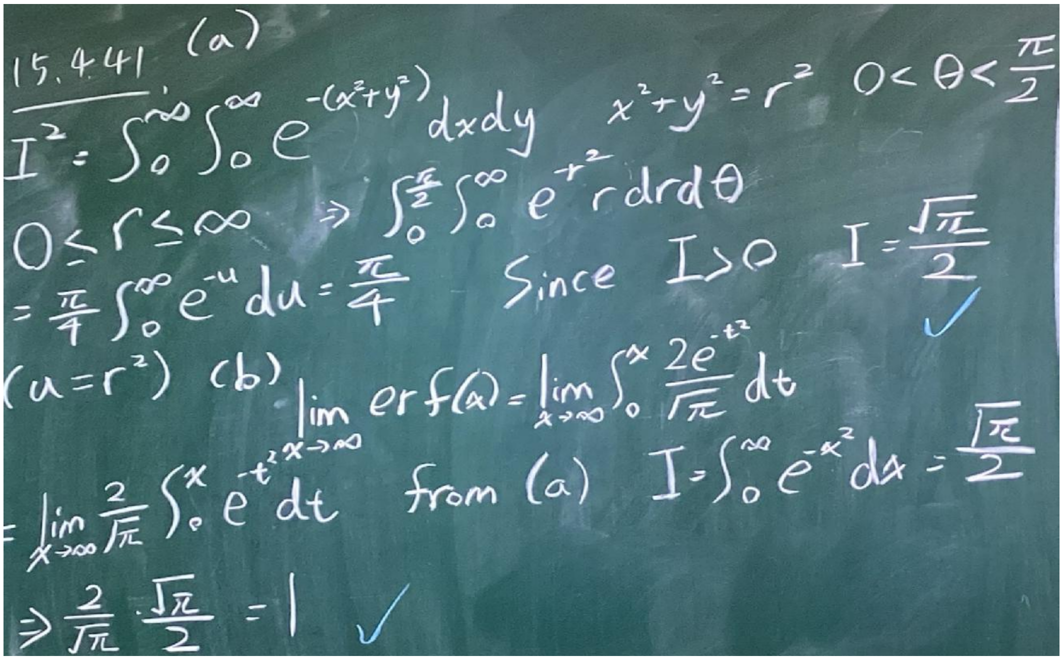


Figure 3: Solution to Section 15.4, problem 41

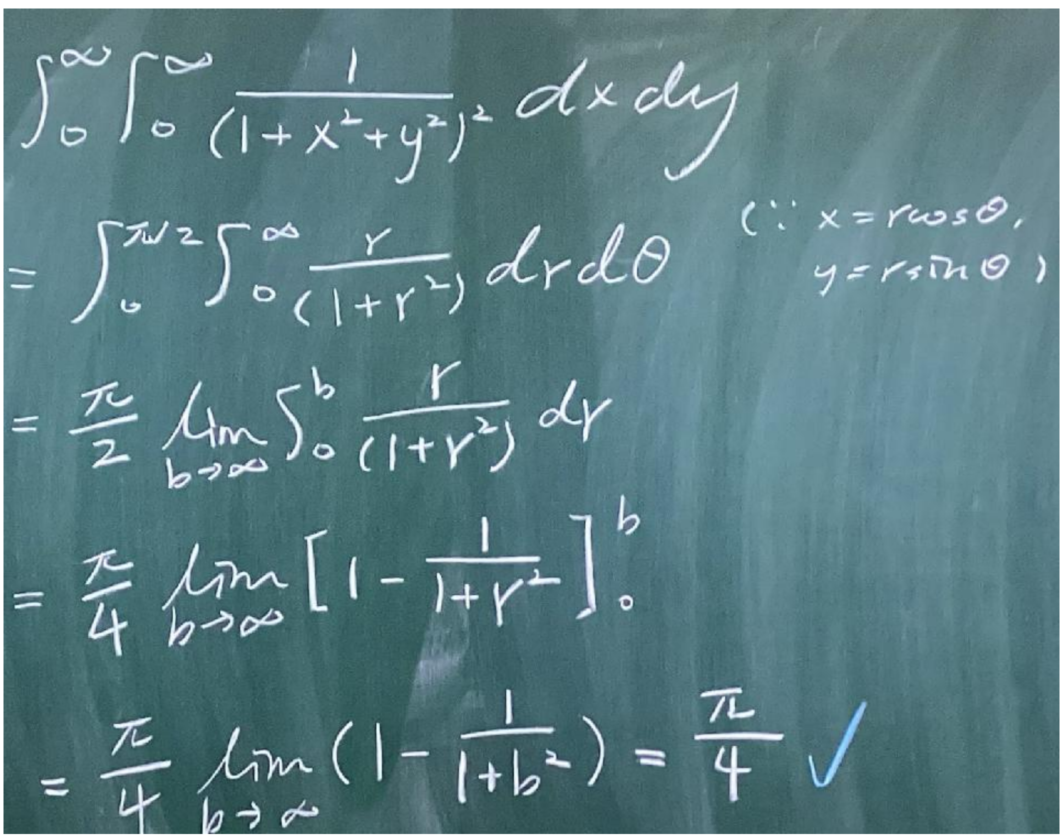


Figure 4: Solution to Section 15.4, problem 42

2. Section 15.5: Solutions, common mistakes and corrections:

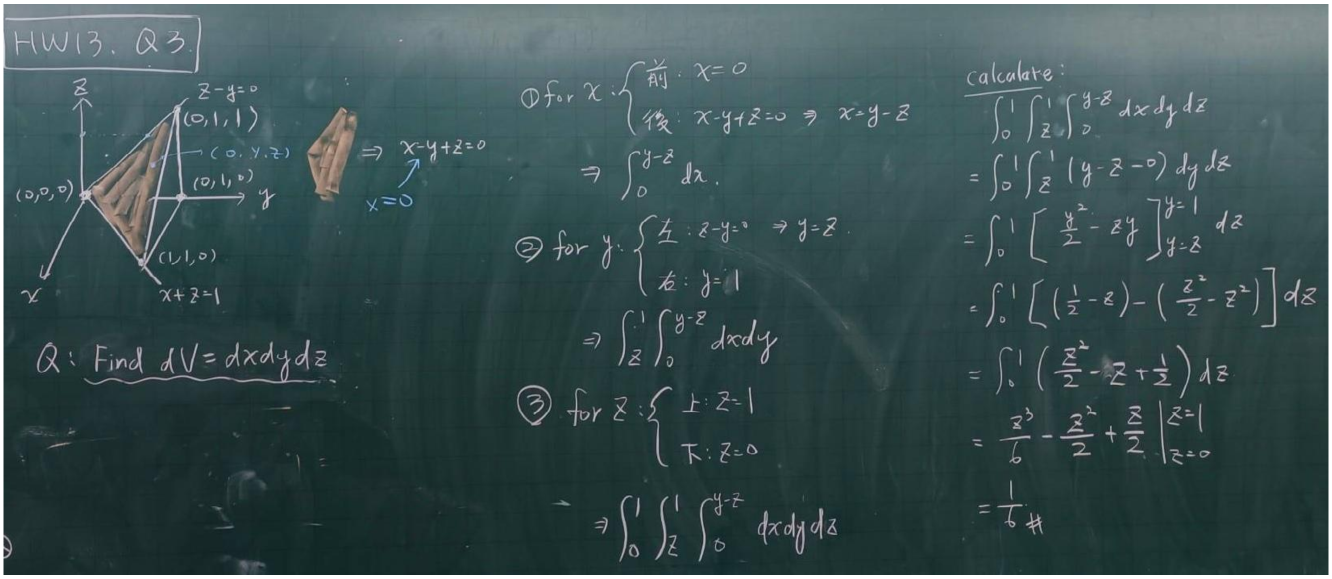


Figure 5: Solution to homework 11, problem 2

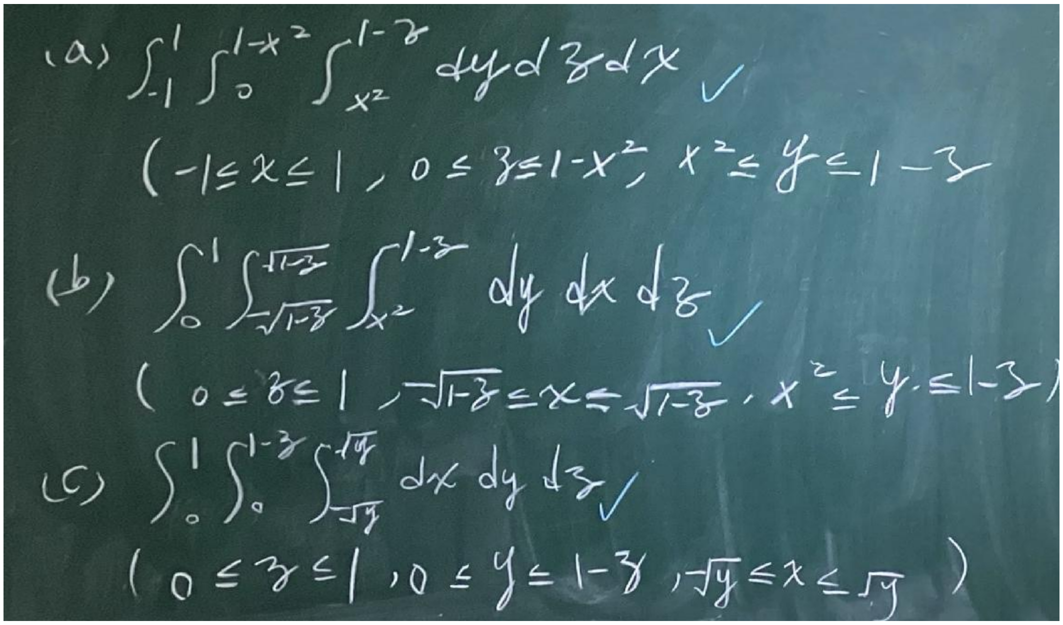


Figure 6: Solution to Section 15.5, problem 21 (a), (b), (c)

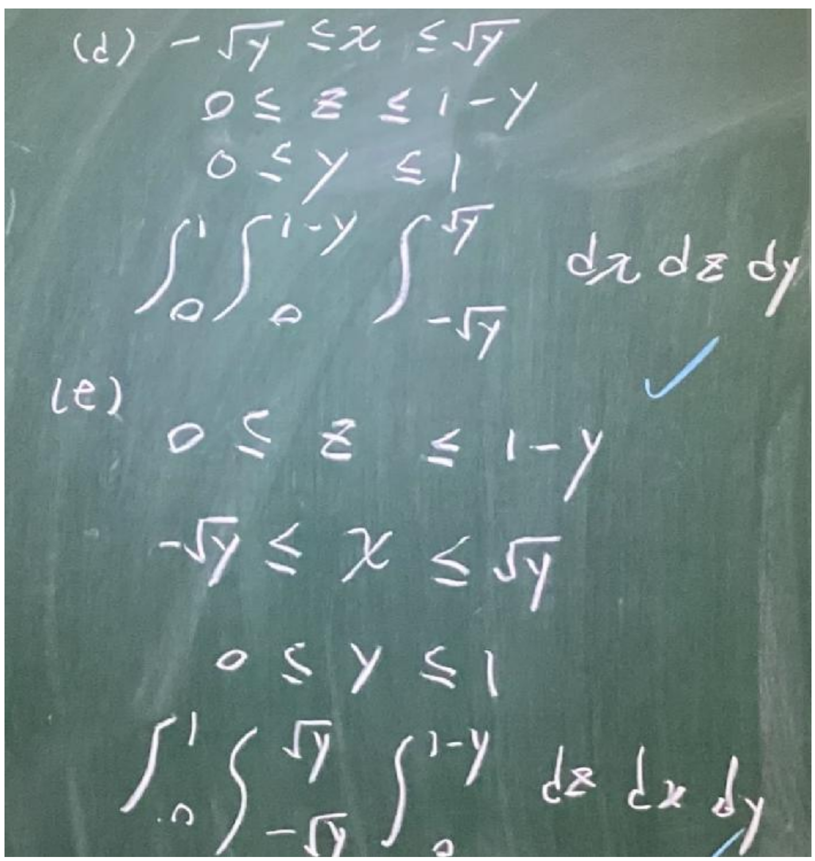


Figure 7: Solution to Section 15.5, problem 21 (d), (e)

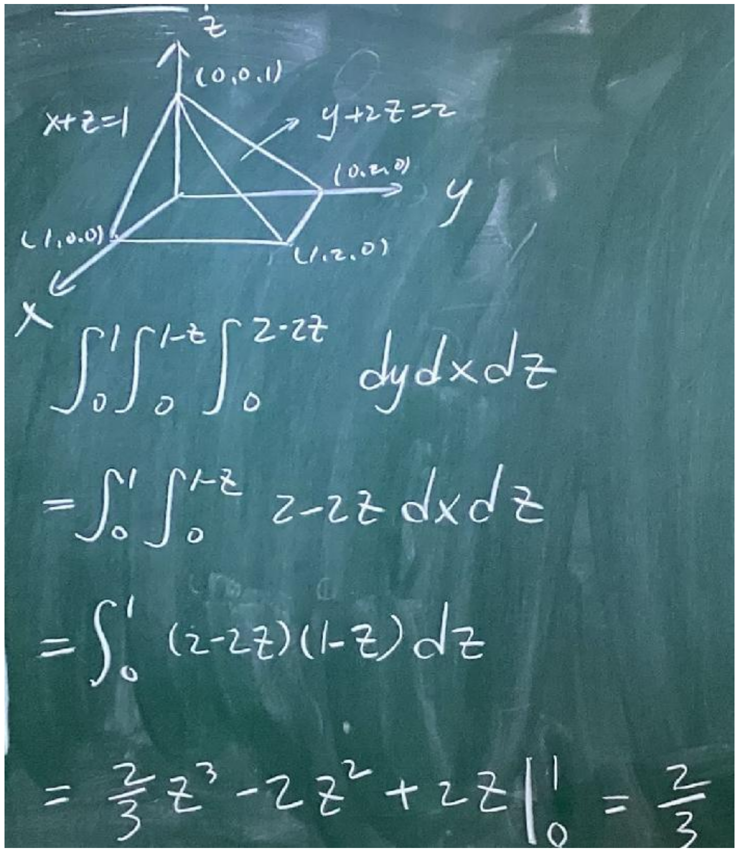


Figure 8: Solution to Section 15.5, problem 24

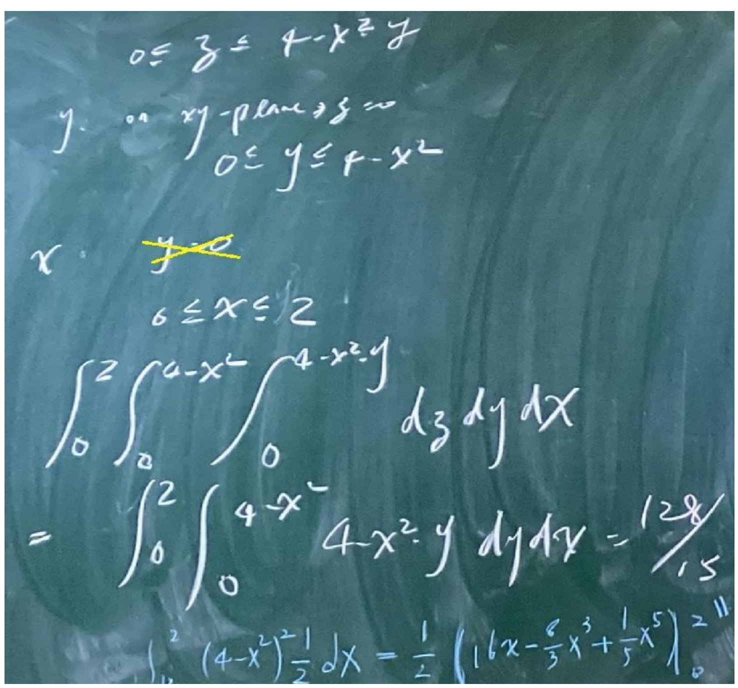


Figure 9: Solution to Section 15.5, problem 30

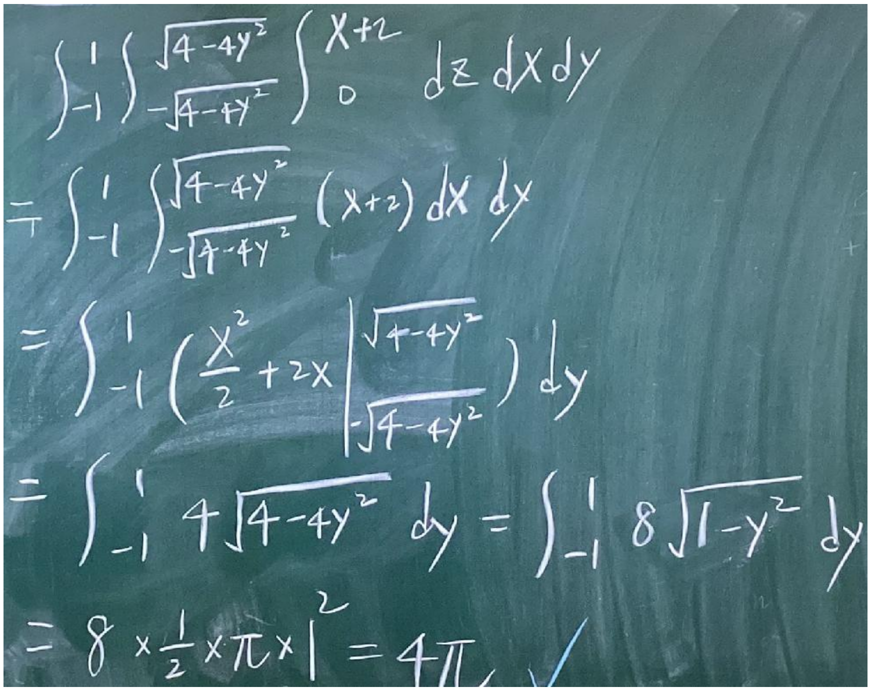


Figure 10: Solution to Section 15.5, problem 35

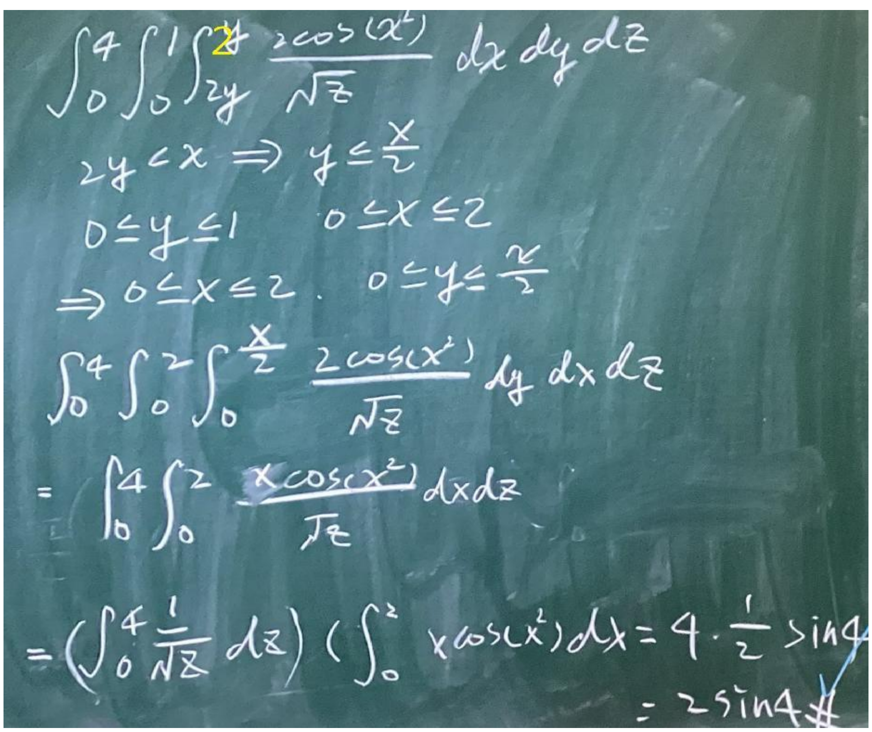


Figure 11: Solution to Section 15.5, problem 41

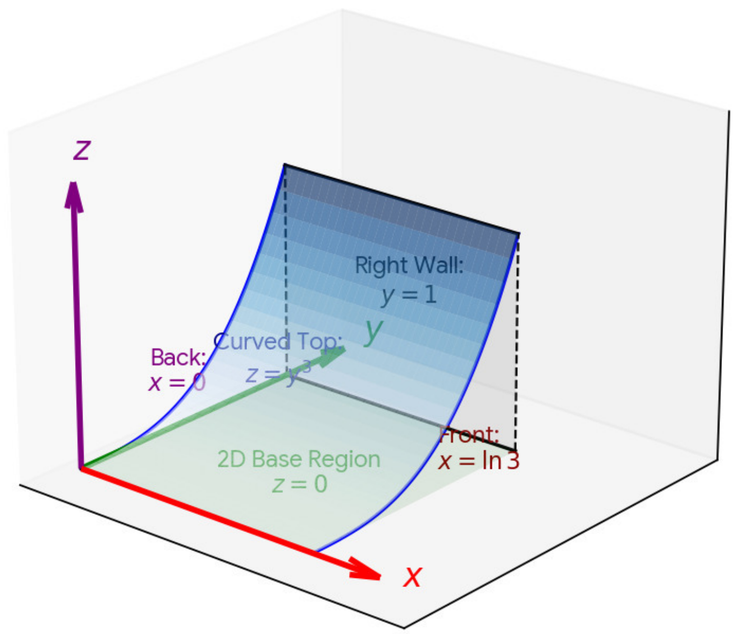


Figure 12: Solution to Section 15.5, problem 43

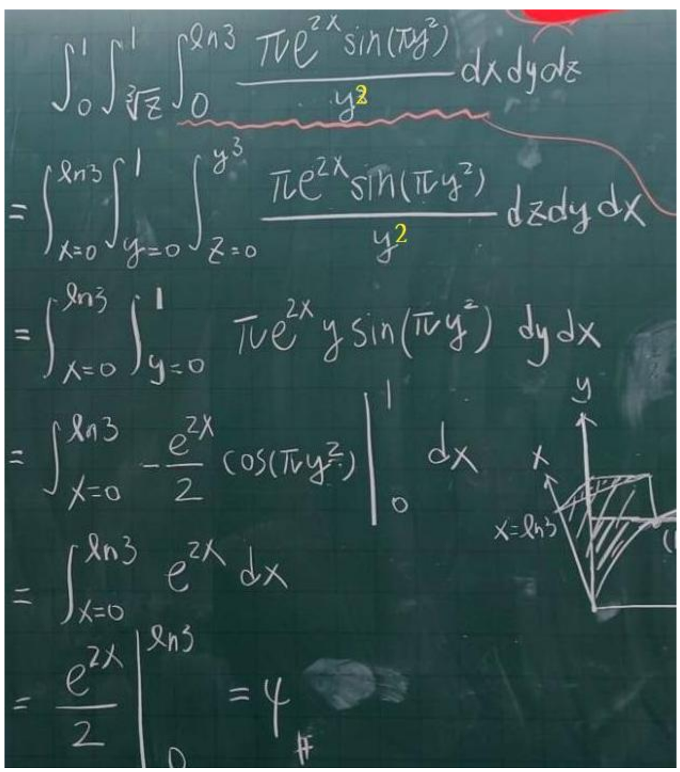


Figure 13: Solution to Section 15.5, problem 43. First plot the $x =$constant cross section, then change $dydz$ to $dzdy$ on this cross section

3. Section 15.7: Solutions, common mistakes and corrections:

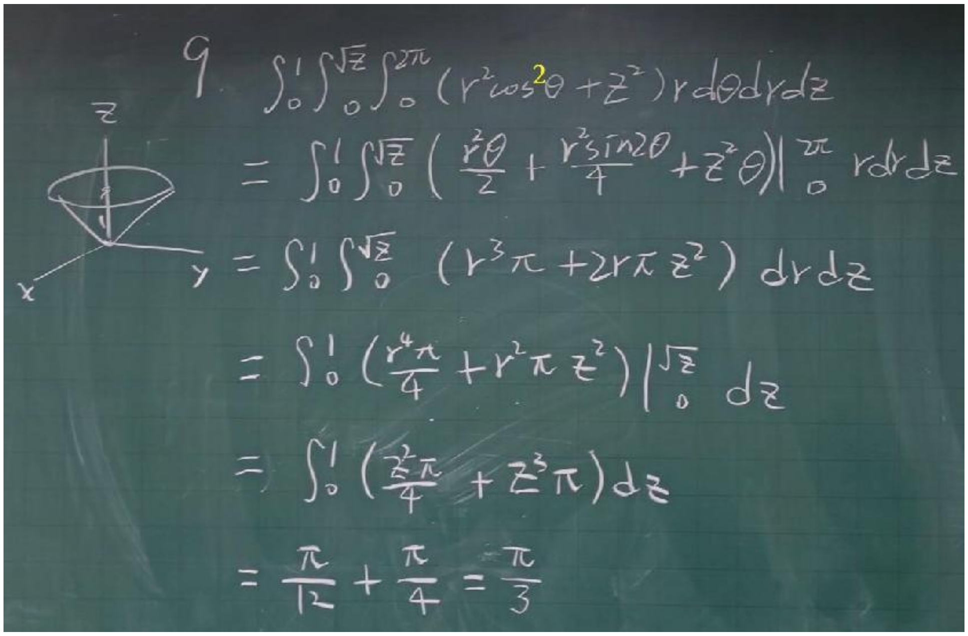


Figure 14: Solution to Section 15.7, problem 9

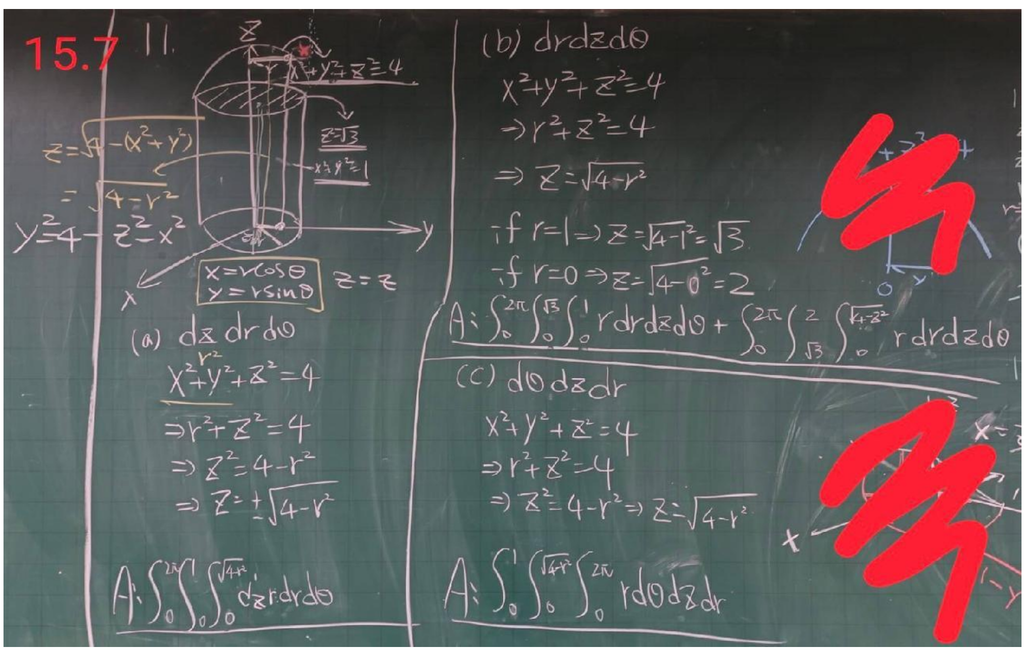
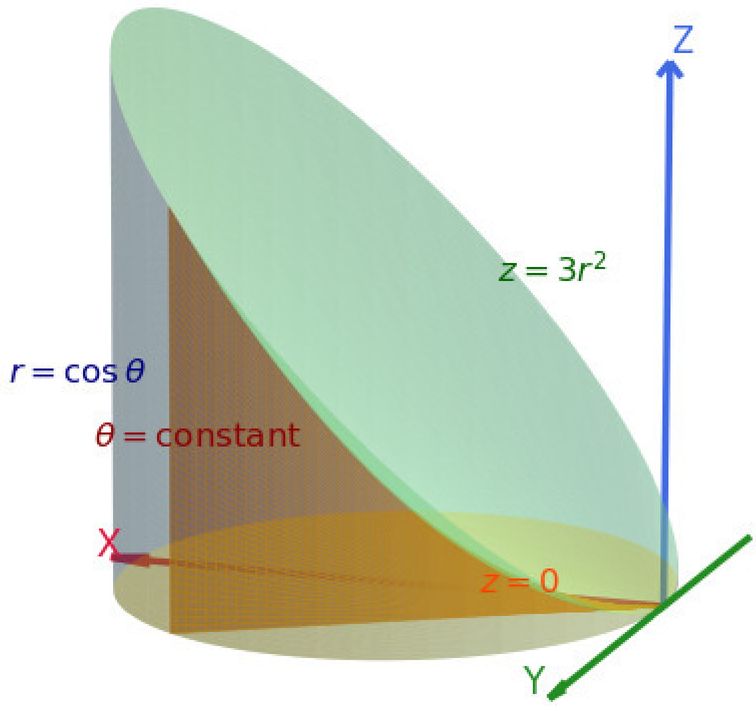


Figure 15: Solution to Section 15.7, problem 11



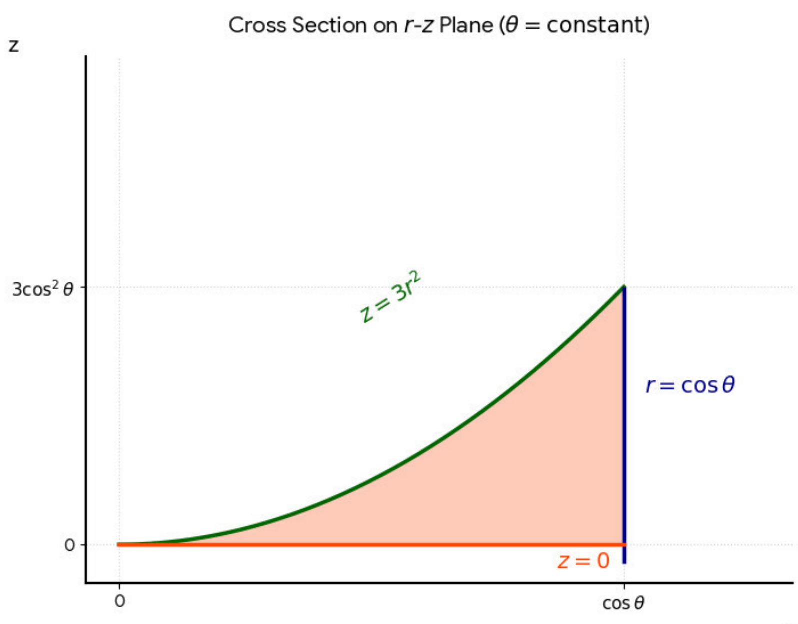
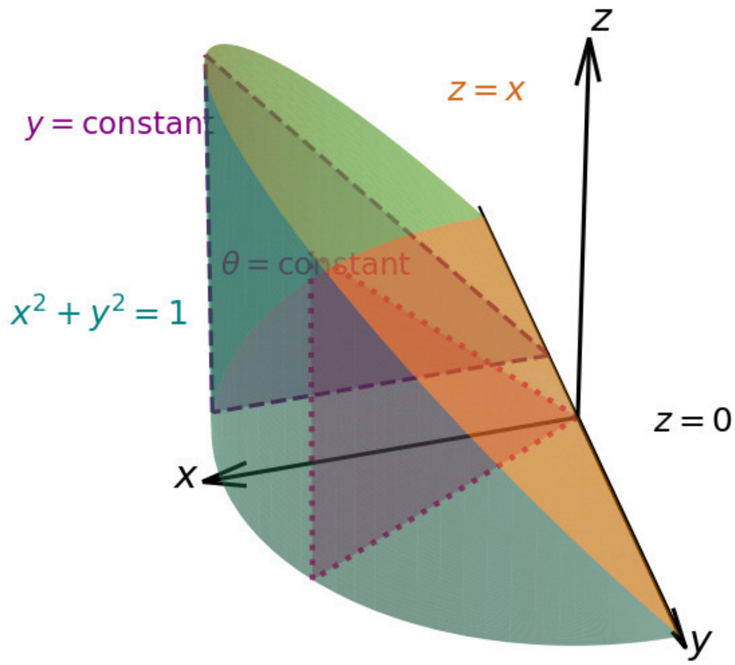


Figure 16: Solution to Section 15.7, problem 13. Answer $= \int_{\frac{-\pi}{2}}^{\frac{\pi}{2}} \int_0^{\cos\theta} \int_0^{3r^2} f(r.\theta, z)\, dz\, r dr\, d\theta$



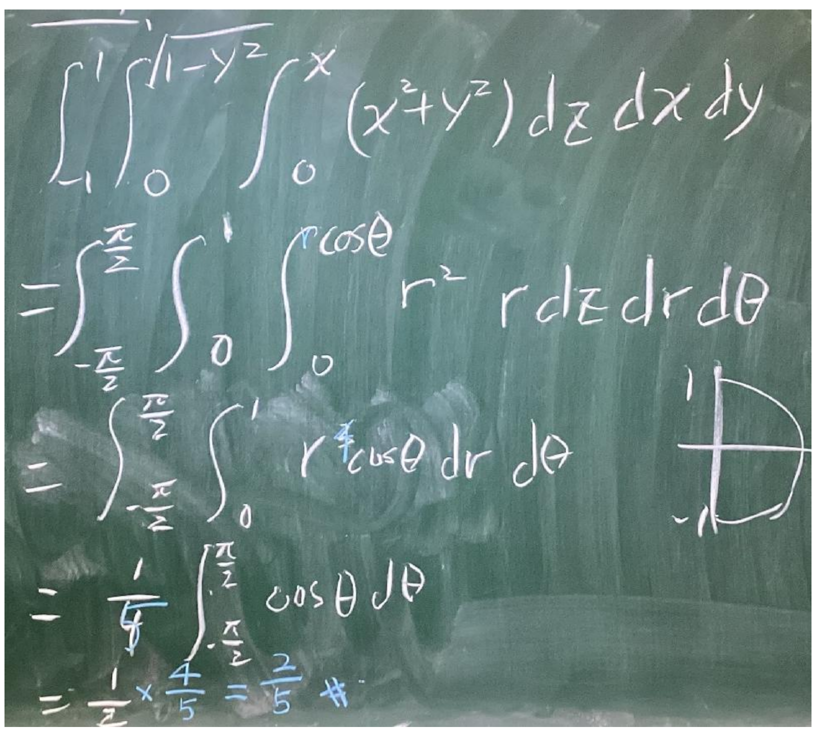


Figure 17: Solution to Section 15.7, problem 14. Construct the 3D image from y =constant cross sections. Then construct θ =constant cross sections and find limits of integration.

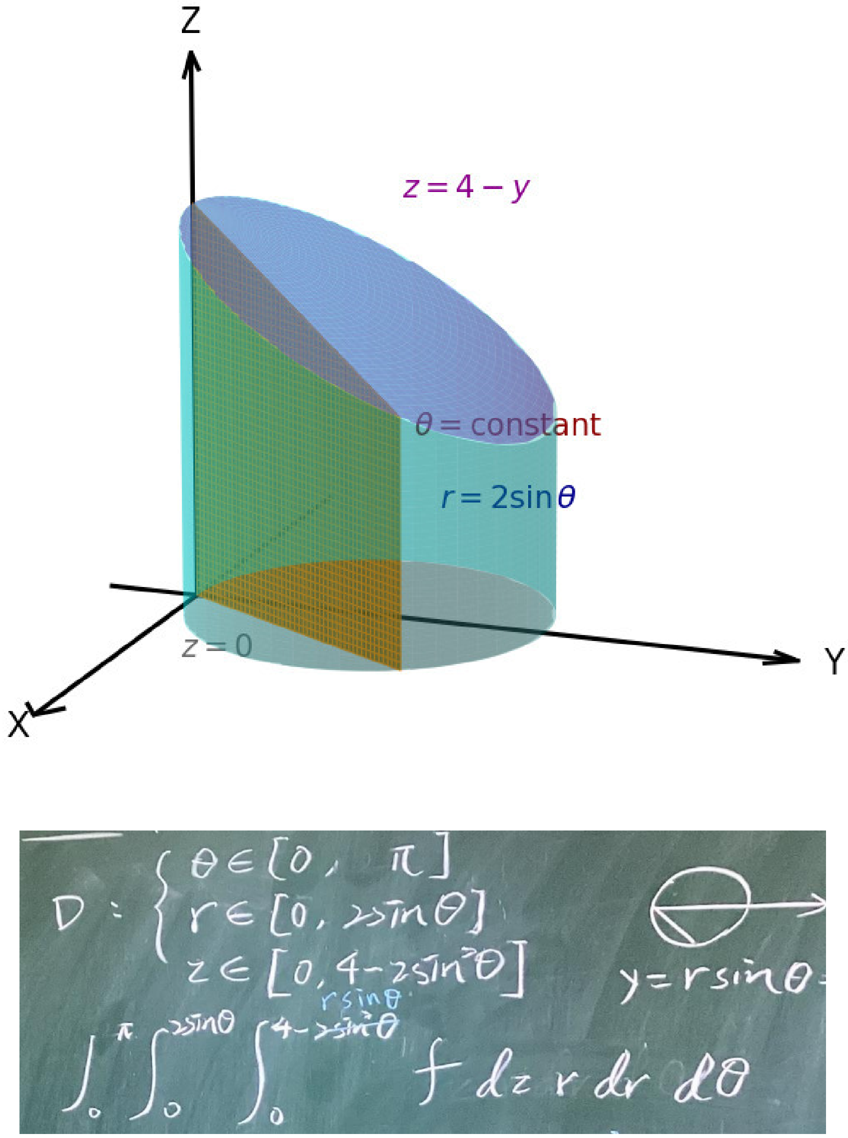


Figure 18: Solution to Section 15.7, problem 15

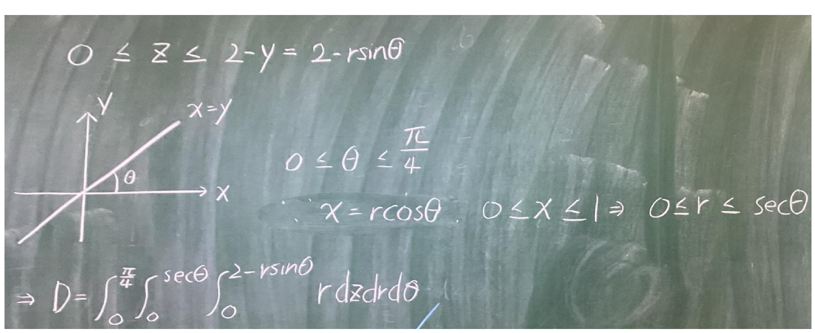


Figure 19: Solution to Section 15.7, problem 19