

Math 212 Spring 2018
Multivariable Calculus Practice HW 7.5
For Test 3 on Wednesday, April 11

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| 1. 17.3.27 | 13. 18.1.25 |
| 2. 17.3.29 | 14. 18.2.1 |
| 3. 17.3.37 | 15. 18.2.3 |
| 4. 17.4.1 | 16. 18.2.5 |
| 5. 17.4.5 | 17. 18.2.9 |
| 6. 17.4.7 | 18. 18.2.11 |
| 7. 17.4.16 | 19. 18.2.17 |
| 8. 18.1.1 | 20. 18.2.19 |
| 9. 18.1.3 | 21. 18.2.21 |
| 10. 18.1.5 | 22. 18.2.25 |
| 11. 18.1.7 (without computing an integral) | 23. 18.2.29 |
| 12. 18.1.13 (without computing an integral) | 24. 18.2.31 |

1. Find the mass of a wire lying along the straight line from $(1, 1)$ to $(2, 4)$ with density $3x + 2y$.
2. Find the mass of a wire lying along the arc of the unit circle from $(0, 1)$ to $(1, 0)$ with density xy .
3. Consider a wire lying along the path parametrized by $\vec{r}(t) = (3t^2 - 2, t^2 + 1)$ for $1 \leq t \leq \sqrt{2}$. If the density is given by $\delta(x, y) = x + y$, calculate the mass of the wire.
Now sketch this parametrization. What easier thing could you have done?
4. Compute $\int_C f d\vec{r}$ if $\vec{r}(t) = (2t, t^3/3, t^2)$ for $0 \leq t \leq 2$ and $f(x, y, z) = 3yz + x$.