1. *First*, evaluate $\int_0^3 (x^2 + 3x - 5)dx$ as the limit of a Riemann sum and then by using the
    2nd Fundamental Theorem of Calculus.

2. What is the average value of $f(x) = x^2 + 3x - 5$ on the interval [0, 5] ?

3. *Find* the value $c \in (0,5)$ such that $f(c) = f_{average}$ on the interval [0, 5].

4. Evaluate the following integrals.

    a. $\int_{-\sqrt{7}}^{0} t(t^2 + 1)^{1/3} dt$

    b. $\int_{-\sqrt{7}}^{\sqrt{7}} t(t^2 + 1)^{1/3} dt$

    c. $\int_0^{2\pi} \frac{\cos x}{\sqrt{3\sin x + 4}} dx$

5. Find the area of the region enclosed by $y = x^4 - 4x^2 + 4$ and $y = x^2$. Sketches can be
    pretty helpful.