MATH 202, Fall 2023 **Name:** _____

In class work week 2(b) **Row and Seat**: _____

In class work **2(b)** has questions **1** through **2** with a total of **6** points. Turn in your work at the end of class *on paper*. This assignment is due *Thursday 31 August 13:20*.

2 1. Evaluate the definite integral $\int_0^4 x^3\sqrt{4+x^4}\,\mathrm{d}x$ by using the substitution $z = 4 + x^4$. Be sure to properly change the limits of integration from $x = 0$ and $z = 4$.

2. The force required to extend a spring is proportional to the amount of extension.

[2] (a) If it requires a force of 10 Newtons to extend the spring 0.03 meters, find the formula for the force F required to extend the spring x meters.

[2] (b) Find the work required to extend the spring 0.05 meters. If you don't know, the MKS unit of work is the Joule (which is Newton × meter)