

MATH 2220 HW8.

Due Wednesday 12 November

(1) Section 6.2 p. 392.

(a) # 29.

(2) Section 7.2 p. 447-451.

(a) # 12.

(b) # 18.

(3) Let C be the solid region bounded by the cone $(z - 1)^2 = x^2 + y^2$ and the planes $z = 0$ and $z = 1$.

Define $T : \mathbb{R}^3 \rightarrow \mathbb{R}^3$ by $T(x, y, z) = (x + 2z, y/2, z)$.

(a) Sketch C and $T(C)$.

(b) Calculate the volume of $T(C)$.

(4) Let $b > a > 0$.

(a) The base of a fence is given by the graph of $y = \log(x)$, $a \leq x \leq b$. The height of the fence is given by $h(x, y) = x^2$. Calculate the area of the fence.

(b) Calculate the length of the graph of $y = \log(x)$ between a and b .