#1:

(1 point) The volume of the solid obtained by rotating the region bounded by

$$y = x^2, \qquad y = 3x,$$

about the line $x = 3$ can be computed using the method of washers via an integral

$$V = \int_a^b$$ [ ] ?

with limits of integration $a =$ [ ] and $b =$ [ ] .

The volume of this solid can also be computed using cylindrical shells via an integral

$$V = \int_\alpha^\beta$$ [ ] ?

with limits of integration $\alpha =$ [ ] and $\beta =$ [ ] .

#2:

(1 point) Find the area of the surface obtained by rotating the curve $y = \sqrt[3]{x}$ about y-axis for $1 \leq y \leq 4$.

Area: [ ]

#3:

Find the work done (in Joules) in pushing a car a distance of 8 meters while exerting a constant force of 900 N.

Work done = [ ] Joules

#4:

(1 point) A cyllindrical tank with a diameter of 8 meters is 5 meters tall. Suppose the tank is filled to 4 meters with an oil that has a weight-density of 25 Newtons per cubic meter. Calculate the work required to pump the oil out from 2 meters above the tank.

[ ] Joules

#5:

(1 point) Point-masses m_i are located on the x-axis as follows. Answer the following questions.

Point-mass	mass m_i	position x_i
m_1	50	4
m_2	40	7
m_3	30	0.5
m_4	20	-6

1. Find the moment M of the system.

Answer: $M =$

2. Find the center of mass $\bar{x}$ of the system.

Answer: $\bar{x} =$