What month is your birthday ?
What are the first 2 digits of your address ?
What are the last 2 digits of your zip code ?
What are the last 2 digits of your DeAnza ID number ?

— —
— —
— —
— —

SCORE: ___ / 30 POINTS

NO CALCULATORS ALLOWED

SHOW PROPER ALGEBRAIC WORK
USE PROPER NOTATION & SIMPLIFY ALL ANSWERS WHERE REASONABLE

MULTIPLE CHOICE: CIRCLE THE CORRECT ANSWER   **SCORE: ___ / 3 POINTS**

A 5 foot long chain weighing 20 pounds hangs from a hook in the ceiling of an 11 foot tall room. (So, the bottom of the chain is 6 feet from the floor.) How many foot-pounds of work are done lifting the bottom loop of the chain to the ceiling so that it touches the top loop ?
(HINT: Draw "before" and "after" diagrams.)

[a] (25)   [b] 10   [c] 20   [d] 30   [e] 15

A 40 foot chain weighing 3 pounds per foot hangs over the edge of a 40 foot tall building. The chain is used   **SCORE: ___ / 6 POINTS**
to lift a 15 pound tabletop from ground level to a window 30 feet above ground.
Write, **BUT DO NOT EVALUATE**, an expression involving an integral (or sum of integrals) for the work done.
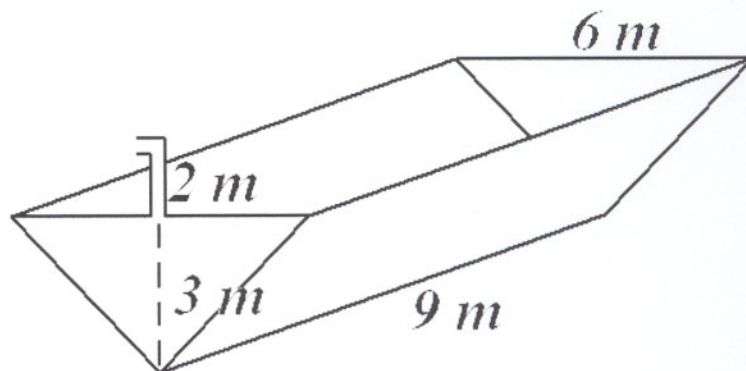
SEE 9:30 VERSION 3

A tank in the shape of the triangular prism shown on the right is filled with water.   **SCORE: ___ / 6 POINTS**
Write, **BUT DO NOT EVALUATE**, an integral for the work required to pump the water out of the spout.

SEE 7:30 VERSION 7

6 m
2 m
3 m
9 m

The region bounded by $x = 1$, $y = \ln x$ and $y = 2$ is revolved around the $y-$axis. Find the volume of the solid.

SCORE: ___ / 6 POINTS

SEE 9:30 VERSION 3

The region bounded by $y = -2$, $y = 1 - \dfrac{1}{2}x$ and $y = 2 - x$ is revolved around the line $y = 1$.

SCORE: ___ / 9 POINTS

[a]   Write, **BUT DO NOT EVALUATE**, an integral (or sum of integrals) for the volume of the solid using the shell method.

SEE 9:30 VERSION 3

[b]   Write, **BUT DO NOT EVALUATE**, an integral (or sum of integrals) for the volume of the solid using the washer method.

SEE 9:30 VERSION 3

[c]   Find the volume of the solid by evaluating the appropriate integral(s) from either [a] or [b].

SEE 9:30 VERSION 3