Problem 1:
The velocity of a bobsled is $v = 10t$ ft/s. When $t = 2$ s, the position of the sled is $s = 25$ ft. What is its position when $t = 10$ s?

Solution:
Given the velocity of the sled, we can integrate to determine the position as:

$$s(t) - s(0) = \int_0^t v(\tau) \, d\tau = 5t^2 \text{ ft.}$$

Therefore, evaluating this at $t = 2$ s we can solve for $s(0)$ as:

$$s(0) = s(2) - (5(2)^2) \text{ ft} = 5 \text{ ft.}$$

Finally, the position at $t = 10$ s becomes:

$$s(10) = (5 + 5(10)^2) \text{ ft} = 505 \text{ ft.}$$