1. (6 pts) Compute the indicated antiderivatives.
   - \[\int (2 - x^{-2})\,dx = 2x - \frac{x^{-1}}{-1} + C = 2x + \frac{1}{x} + C.\]
   - \[\int (2x - \cos 2x)\,dx = x^2 - \frac{1}{2}\sin(2x) + C.\]
   - \[\int \left(\frac{2}{1 - 2x} + e^{2x}\right)\,dx = -\ln|1 - 2x| + \frac{1}{2}e^{2x} + C.\]

2. (4 pts) A car travels at velocity 30t km/hr from \(t = 0\) to \(t = 3\) (\(t\) in hours) and \(180 - 30t\) km/hr over the next three hours. If the car began 100 km from home, how far away is it now?

The new distance equals original distance plus total change. In this case, it equals

\[100 + \int_0^6 v(t)\,dt,\]

where \(v(t)\) is given in the graph above. The area under \(v(t)\) is easy to compute using geometry as \((1/2)(6)(90) = 270\). Thus the car is now 370 km away from home.