

P2.4-4)^{fe} A car initially traveling at 60 mph coasts for 5 seconds. Due to friction and wind resistance, the car decelerates while coasting at a rate of 1 ft/s^2 . After the 5 seconds of coasting, the driver applies the brakes and decelerates at a constant rate eventually bringing the car to a stop. If the total time that the car travels is 8 seconds, determine the car's braking acceleration.

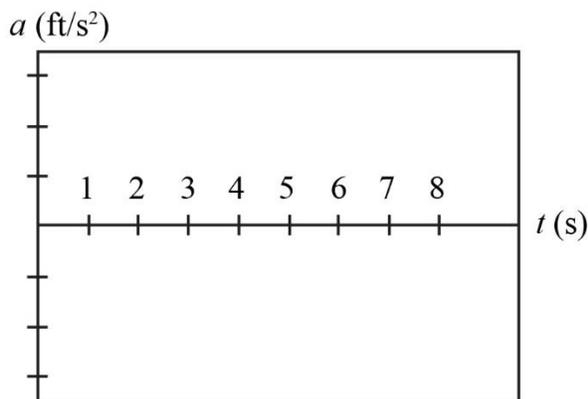
Given:

Find:

Solution:

Draw the acceleration and velocity curves.

There will be two segments of motion.

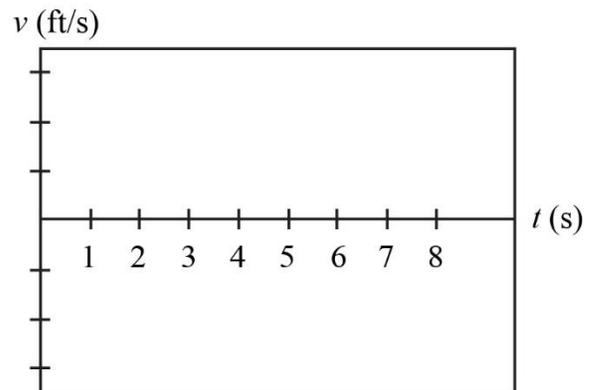


Calculate the change in velocity for the first segment.

$\Delta v_A =$ _____

Calculate the velocity at $t = 5$ seconds.

$v_{t=5} =$ _____



Using the graphical method, determine the car's braking acceleration.

$a_{\text{brake}} =$ _____