A policeman (P) observes a car (A) going by. Five (5.00) seconds after car A goes by, the policeman starts off at a uniform acceleration of 3.00 m/s². The policeman catches car A 16.0 s after A passes him.

(a) How fast was the policeman going when he catches up to car A?
(b) How far is the policeman from his starting point when he catches car A?
(c) How fast was car A going? (Assume he maintains a steady speed.)

$t_p = 16 - 5 = 11\, \text{s}$

$a) \quad v_p = a_p \cdot t_p = 3 \cdot \frac{11}{11} = 33 \, \text{m/s}$

$b) \quad s = \frac{a_p \cdot v_p^2}{2} = \frac{3 \cdot 11^2}{2} = 181.5 \, \text{m}$

$c) \quad v_A = \frac{s}{t_A} = \frac{181.5}{16} = 11.3 \, \text{m/s}$