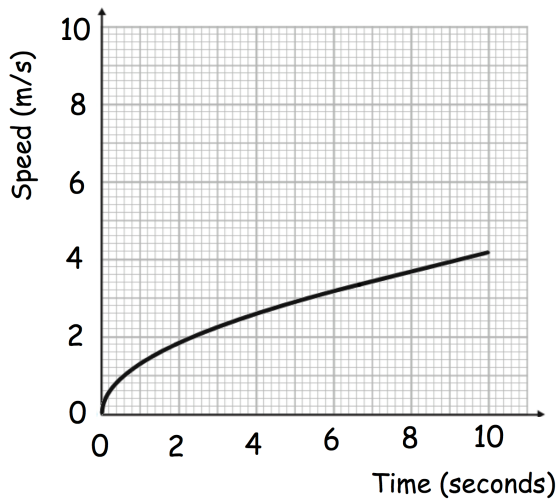


Given that

$$(x + 3)(x + a)(x + 7) \equiv x^3 + 15x^2 + 71x + 105$$

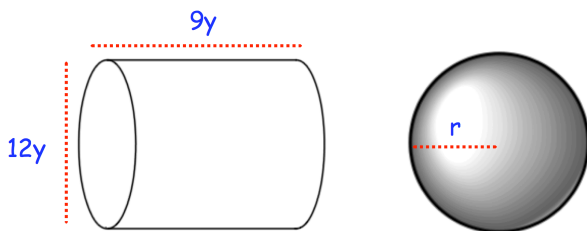
Find the value of  $a$

Henry walks for 10 seconds.  
The speed-time graph shows information about his journey.



Find an estimate for how far Henry walks during the 10 seconds.

Is your answer an underestimate or an overestimate? Explain your answer.



The cylinder and sphere have the same volume.  
Express  $r$  in terms of  $y$

$S$  is a geometric sequence

The first three terms of  $S$  are  $(x + 14)$ ,  $x$  and  $(2x - 21)$ , where  $x$  is positive.

Find the value of  $x$ .