

Master 10.2a
Acceleration Calculations: Sample Problems 1 and 2

Sample Problem 1
A car starts from rest and accelerates at 2.0 m/s^2 .
How long does it take to reach 15 m/s ?

$a = 2.0 \text{ m/s}^2$ $v = 15 \text{ m/s}$ $v_i = 0$
 $v = v_i + at$
 $15 = 0 + (2.0)(t)$
 $t = 7.5 \text{ s}$

Sample Problem 2
A car starts from rest and accelerates at 2.0 m/s^2 .
How far does it travel in 3.0 s ?

$a = 2.0 \text{ m/s}^2$ $t = 3.0 \text{ s}$ $v_i = 0$
 $v = v_i + at$
 $v = 0 + (2.0)(3.0)$
 $v = 6.0 \text{ m/s}$
 $s = v_i t + \frac{1}{2} a t^2$
 $s = (0)(3.0) + \frac{1}{2}(2.0)(3.0)^2$
 $s = 9.0 \text{ m}$

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Acceleration Calculations: Sample Problems 4 and 5

Sample Problem 4
A car starts from rest and accelerates at 2.0 m/s^2 .
How far does it travel in 3.0 s ?

Sample Problem 5
A car starts from rest and accelerates at 2.0 m/s^2 .
How far does it travel in 3.0 s ?

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