

## 10.E: Rocket Motion (Exercises)

### ? Exercise 10.E. 1

Derive the integral in section 2.

### ? Exercise 10.E. 2

Integrate equation 10.3.2 to obtain equation 10.3.3

### ? Exercise 10.E. 3

Integrate equation 10.3.3 to obtain equation 10.3.5

### ? Exercise 10.E. 4

Obtain equation 10.3.6

In the following problems, (numbers 5 - 8) assume:

$$V = 2 \text{ km s}^{-1}.$$

$$m_0 = 2000 \text{ kg}$$

$$b = 0.5 \text{ kg s}^{-1}$$

$$f = 90\%$$

### ? Exercise 10.E. 5

What is the maximum speed, and how long does it take to attain it?

### ? Exercise 10.E. 6

How long does it take to reach a speed of  $3 \text{ km s}^{-1}$ ?

### ? Exercise 10.E. 7

How long does it take for the rocket to travel 600 km?

### ? Exercise 10.E. 8

How fast is it moving when it has travelled 300 km?

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