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### 3.5.4 Finger Exercise: Forward versus Backward Euler

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Finger Exercises 3 due Aug 17, 2023 05:00 IST Completed

MO2.7

Consider the differential equation

$$\frac{du}{dt} = -1000u$$

(3.27)

with initial condition  $u(0) = 1$ .

#### Problem: Forward Euler first iteration

1/1 point (graded)  
Find  $u_{FE}^1$ , the value reached by one step of the Forward Euler method with time step  $\Delta t = 0.01$ . Provide your answer with three digits of precision (of the form X.YZeP where P is the base10 power)

-9.00e0

✓ Answer: -9.00e0

Submit

**i** Answers are displayed within the problem

#### Problem: Backward Euler first iteration

1/1 point (graded)  
Find  $u_{BE}^1$ , the value reached by one step of the Backward Euler method with time step  $\Delta t = 0.01$ . Provide your answer with three digits of precision (of the form X.YZeP where P is the base10 power)

9.09e-2

✓

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**SOLUTION:** The solution will be available shortly after the due date in Section 3.6.4.

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