

Question 9

A savings account earns interest compounded continuously at an annual rate of 4.5

$$A(t) = 3000e^{0.045t}$$

- (a) How much money will be in the account after 6 years?
- (b) How long will it take for the account to reach \$5,000?
- (c) How much interest is earned between years 4 and 8?

Round all answers to two decimal places.

Question 9 - Solution

Use the exact exponential model and keep full precision until the final rounding.

(a)

$$A(6) = 3000e^{0.27}$$

3929.89 dollars

(b)

$$t = \ln(5000/3000)/0.045$$

11.35 years

(c)

$$A(8) - A(4) = 3000(e^{0.36} - e^{0.18})$$

708.34 dollars
