$\log_{10}(2)$ 0.30103

1 / 1 point

11. A tree is growing taller at a continuous rate. In the past 12 years it has grown from 3 meters to 15 meters. What is its rate of growth per year?

○ 12.41%

○ 10.41%

○ 11.41%

◉ 13.41%

✓ **Correct**

$\dfrac{\ln \frac{15}{3}}{12} = 0.1341$

1 / 1 point

12. Bacteria can reproduce exponentially if not constrained. Assume a colony grows at a continually compounded rate of 400% per day. How many days before a colony with initial mass of 6.25 x 10^{-10} grams weights 1000 Kilograms?

○ 875 days

◉ 8.75 days

○ 0.875 days

○ 87.5 days

✓ **Correct**

$6.25 \times 10^{-10} \times e^{4t} = 10^6$

$4t = \ln(\dfrac{10^6}{(6.25 \times 10^{-10})}) = 35.00878$

$t = \ln \dfrac{10^6}{6.25 \times 10^{-10}} = 8.752195$