

**F.IF.C.8: Modeling Exponential Functions**

1 Which function represents exponential decay?

1)  $y = 2^{0.3t}$

3)  $y = \left(\frac{1}{2}\right)^{-t}$

2)  $y = 1.2^{3t}$

4)  $y = 5^{-t}$

2 The function  $M(t)$  represents the mass of radium over time,  $t$ , in years.

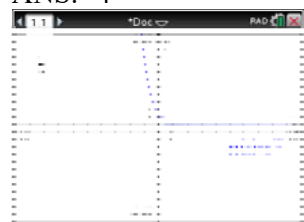
$$M(t) = 100e^{\frac{\left(\ln \frac{1}{2}\right)t}{1590}}$$

Determine if the function  $M(t)$  represents growth or decay. Explain your reasoning.

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### Answer Section

1 ANS: 4



$$y = 5^{-t} = \left(\frac{1}{5}\right)^t$$

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2 ANS:

$$\left(\ln \frac{1}{2}\right)$$

$\frac{\left(\ln \frac{1}{2}\right)}{1590}$  is negative, so  $M(t)$  represents decay.

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