

Watch. Practice. Understand. | Lesson 209

Pre Cal 4 1 Graphing Exponential Functions And Constant e interpretation

Watch the matching video: <https://www.youtube.com/watch?v=-GNegkKbRIw>

Practice focus: Exponential functions and models

Original extra practice matched to the listed lesson topic.

Name: _____ Date: _____ Show your reasoning and check units.

01 Solve $3^{(x + 1)} = 81$.

02 A population starts at 500 and doubles every 3 hours. Find its size after 9 hours.

03 An item worth \$800 loses 15% of its value per year. Find its value after 2 years.

04 Find the y-intercept, horizontal asymptote and range of $y = 2^x - 3$.

Worked answers | Lesson 209

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01 Solve $3^{(x+1)} = 81$.

$$81 = 3^4, \text{ so } x + 1 = 4 \text{ and } x = 3.$$

02 A population starts at 500 and doubles every 3 hours. Find its size after 9 hours.

$$P(t) = 500(2)^{(t/3)}. P(9) = 500(8) = 4000.$$

03 An item worth \$800 loses 15% of its value per year. Find its value after 2 years.

$$V = 800(0.85)^2 = \$578.$$

04 Find the y-intercept, horizontal asymptote and range of $y = 2^x - 3$.

At $x = 0$, $y = -2$. Asymptote $y = -3$; range $(-3, \text{infinity})$.