

Watch. Practice. Understand. | Lesson 180

Pre Cal 4 5 Exp Models

Watch the matching video: <https://www.youtube.com/watch?v=U3GEecFwfCs>

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 180

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

$81 = 3^4$, so $x + 1 = 4$ 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 $(-3, \text{infinity})$.