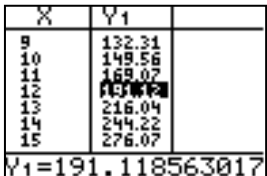


Algebra II Module 8 Lesson 13 – Solving Contextual Exponential Equations

4. Estimates, in millions, of the number of U.S. households with digital televisions from 2003 to 2007 are shown in the table:

Year	Number of Households (in millions)
2003	44.2
2004	49.1
2005	56.2
2006	63.4
2007	71.8

Find an exponential growth model that fits the given data. Then use your model to approximate the year you would expect the number of U.S. households that have digital televisions to exceed 200 million? Write a convincing statement to support your answer.

<p>A Between 2012 and 2013.</p>	<p>Incorrect. The correct growth model $y = 43.89(1.13)^x$ is used. The TABLE of values shows the functional value, 200 million, occurs between 12 and 13... but, remember, the starting value is for the year 2003 meaning the number of televisions in U.S. households is 12 or 13 years <i>after</i> 2003.</p> 
<p>B Close to the year 2026.</p>	<p>Incorrect. The linear growth model $y = 43.04 + 6.95x$ is used instead of an exponential model.</p>
<p>C There is insufficient information to answer this question.</p>	<p>Incorrect. There is sufficient information. Use the equation $y = 43.89(1.13)^x$.</p>
<p>D Between 2015 and 2016.</p>	<p>Correct: The correct growth model is $y = 43.89(1.13)^x$.</p> <p>Using the TABLE, the number of households with digital televisions would exceed 200 million between 12 and 13 years, 12 to 13 years after 2003 would be between 2015 and 2016</p> <p>Using the Multi-Graph method and finding the intersection, the number of digital televisions would exceed 200 million when $x=12.371$ or a little more than 12 years after 2003.</p> 