

7.2 Exponential Decay

Algebra 1

Name: _____

CA #1

Identify if the function is exponential growth or decay and justify your response.

1. $f(x) = 6.7\left(\frac{5}{21}\right)^x$ Exponential Growth or Decay	2. $f(x) = \frac{2}{3}\left(\frac{3}{2}\right)^x$ Exponential Growth or Decay	3. $f(x) = 1.4(0.07)^x$ Exponential Growth or Decay	4. $f(x) = 6(2.06)^x$ Exponential Growth or Decay
5. $f(x) = \frac{8}{3}\left(\frac{2}{17}\right)^x$ Exponential Growth or Decay	6. $f(x) = 10(5.25)^x$ Exponential Growth or Decay	7. $f(x) = 6.2(0.1)^x$ Exponential Growth or Decay	8. $f(x) = 6\left(\frac{13}{10}\right)^x$ Exponential Growth or Decay

Create a model (equation) for each scenario.

9. A new van is bought for \$30,000 and depreciates in value by 8.4% per year.	10. The new tires on an ATV have a tread depth of 1.3 inches and decays at a rate of 5.6% per month.
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For each equation, identify the initial value (I.V.) and the percent increase or decrease.

11. $f(x) = 80(1.23)^x$ I.V. _____ % Inc/Dec: _____	12. $f(x) = 3(0.32)^x$ I.V. _____ % Inc/Dec: _____	13. $f(x) = 25(1.559)^x$ I.V. _____ % Inc/Dec: _____	14. $f(x) = 502(0.6)^x$ I.V. _____ % Inc/Dec: _____
15. $f(x) = 1.4(0.07)^x$ I.V. _____ % Inc/Dec: _____	16. $f(x) = 6(2.06)^x$ I.V. _____ % Inc/Dec: _____	17. $f(x) = 0.65(1.8)^x$ I.V. _____ % Inc/Dec: _____	18. $f(x) = 0.8(4.242)^x$ I.V. _____ % Inc/Dec: _____

Answers to 7.2 CA #1

1. Decay because $0 < b < 1$	2. Growth because $b > 1$	3. Decay because $0 < b < 1$	4. Growth because $b > 1$	5. Decay because $0 < b < 1$
6. Growth because $b > 1$	7. Decay because $0 < b < 1$	8. Growth because $b > 1$	9. $y = 30,000(0.916)^x$	10. $y = 1.3(0.944)^x$
11. Initial Value: 80 23% increase	12. Initial Value: 3 68% decrease	13. Initial Value: 25 55.9% increase	14. Initial Value: 502 40% decrease	
15. Initial Value: 1.4 93% decrease	16. Initial Value: 6 106% increase	17. Initial Value: 0.65 80% increase	18. Initial Value: 0.8 324.2% increase	