7.2 Exponential Decay
Algebra 1   Name: _____

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

1. $f(x) = 1.5\left(\frac{3}{4}\right)^x$	2. $f(x) = 6.8(0.4)^x$	3. $f(x) = 2.1(0.06)^x$	4. $f(x) = \frac{7}{6}\left(\frac{6}{7}\right)^x$
Exponential Growth or Decay	Exponential Growth or Decay	Exponential Growth or Decay	Exponential Growth or Decay
5. $f(x) = 9(3.1)^x$	6. $f(x) = 8\left(\frac{11}{5}\right)^x$	7. $f(x) = \frac{12}{17}\left(\frac{17}{12}\right)^x$	8. $f(x) = 18(5.6)^x$
Exponential Growth or Decay	Exponential Growth or Decay	Exponential Growth or Decay	Exponential Growth or Decay

Create a model (equation) for each scenario.

9. 650 grams of radioactive material decays at a rate of 1.9% per year.	10. Mr. Brust's weight gain after Winter Break is significant and wants to go on a diet for one month. He starts at 450 pounds but his weight decays by 3.6% per week.

For each equation, identify the initial value (I.V.) and the percent increase or decrease.

11. $f(x) = 7(0.65)^x$	12. $f(x) = 0.2(4.505)^x$	13. $f(x) = 0.79(1.4)^x$	14. $f(x) = 304(0.7)^x$
I.V. _____	I.V. _____	I.V. _____	I.V. _____
% Inc/Dec: _____	% Inc/Dec: _____	% Inc/Dec: _____	% Inc/Dec: _____
15. $f(x) = 0.3(0.248)^x$	16. $f(x) = 42(1.752)^x$	17. $f(x) = 90(1.85)^x$	18. $f(x) = 0.788(0.983)^x$
I.V. _____	I.V. _____	I.V. _____	I.V. _____
% Inc/Dec: _____	% Inc/Dec: _____	% Inc/Dec: _____	% Inc/Dec: _____

Answers to 7.2 CA #2

1. Decay because $0 < b < 1$	2. Decay because $0 < b < 1$	3. Decay because $0 < b < 1$	4. Decay because $0 < b < 1$	5. Growth because $b > 1$
6. Growth because $b > 1$	7. Growth because $b > 1$	8. Growth because $b > 1$	9. $y = 650(0.981)^x$	10. $y = 450(0.964)^x$
11. Initial Value: 7 35% decrease	12. Initial Value: 0.2 350.5% increase	13. Initial Value: 0.79 40% increase		14. Initial Value: 304 30% decrease
15. Initial Value: 0.3 75.2% decrease	16. Initial Value: 42 75.2% increase	17. Initial Value: 90 85% increase		18. Initial Value: 0.788 1.7% decrease