7.3 Percent Change

Corrective Assignment #1

For each equation, identify the initial value (I.V.) and the percent change.

1. $f(x) = 0.7(1.65)^x$ I.V. _____ % change: _____	2. $f(x) = -0.2(2.505)^x$ I.V. _____ % change: _____	3. $f(x) = 5.79(1.5)^{-x}$ I.V. _____ % change: _____	4. $f(x) = 34(0.8)^{-x}$ I.V. _____ % change: _____
5. $f(x) = 3(0.9998)^x$ I.V. _____ % change: _____	6. $f(x) = 0.42(1.001)^x$ I.V. _____ % change: _____	7. $f(x) = 0.9(0.85)^x$ I.V. _____ % change: _____	8. $f(x) = 12(0.003)^x$ I.V. _____ % change: _____

Exponential Modeling: Identifying Multipliers Many ways of changing a number can be accomplished through a single multiplication. Fill in this chart with the multiplier that would accomplish each of the described changes. Three examples are shown to get you started.

9. You purchase a Mr. Brust Bootlegged Quadratic Formula VCR tape for $2.50. Three years later, its value is $2.88.
   a. Create an exponential model that represents the value of the VCR tape.

   b. Find the value of the card in ten years.

10. Mr. Bean bought an authenticated signed Karl-Malone jersey for $200 in 2015. In 2017, it was worth $230.

11. Create a function, $F(x)$, that models the value of the jersey over time. Tell what $F(7)$ represents.

    b. Estimate the value of the jersey in the year 2025 to the nearest dollar.

11. The cost of goods and services in a particular city increased by 2.5% last month. If this rate continues, what will be the ***annual*** rate of increase?

Answers:

1. IV: 0.7, %-Change: 65% increase 2. IV: -0.2, %-Change: 150.5% increase 3. IV: 5.79, %-Change: 33% decrease 4. IV: 34, %-Change: 25% increase 5. IV: 3, %-Change: 0.02% decrease 6. IV: 0.42, %-Change: 0.1% decrease 7. IV: 0.9, %-Change: 15% decrease 8. IV: 12, %-Change: 99.7% decrease 9a. $F(x) = 2.50(1.04829558)^x$; b. $F(10) = \$4.01$ 10. $F(x) = 200(1.07238)^x$ b. $F(10) = \$402$ 11. $F(x) = a(1.025)^{x(12)} = a(1.025)^{12x} = a((1.025)^{12})^x = a(1.34)^x$ SO, annually, the rate of increase would be 34%.