Algebra 1
Unit 5 – Project
Exponents and Exponential Functions

Instructions: Answer **ALL** questions. You **MUST** attach all graph/sketches and show all calculations and/or explanations to justify your answers. If you are asked to provide a graph, you **MUST** use graph paper or a graphing utility/software. Upload the completed project as a Word or PDF file.

1.   Write each radical using rational exponents.

   a. $\sqrt{8}$

   b. $\sqrt[3]{12}$

2.   Simplify the following. Give your answer in its simplest form.

   a. $\sqrt{420}$

   b. $4\sqrt{84}$

   c. $11\sqrt[3]{-16}$

   d. $\sqrt{8} \cdot \sqrt{20}$

   e. $2\sqrt{35} \cdot \sqrt{45}$

   f. $3\sqrt{17} + 2\sqrt{17}$

   g. $5\sqrt{80} - 2\sqrt{96}$

   h. $\frac{\sqrt{108}}{\sqrt{12}}$

3.   Graph the exponential function, and state the domain, range, intercepts, and constant ratio.

$$f(x) = 5(2)^x$$

4.   Write an exponential growth or decay function to model each situation.

   a.   initial value: 50, growth factor: 1.15

   b.   initial value: 200, decay factor: 0.85