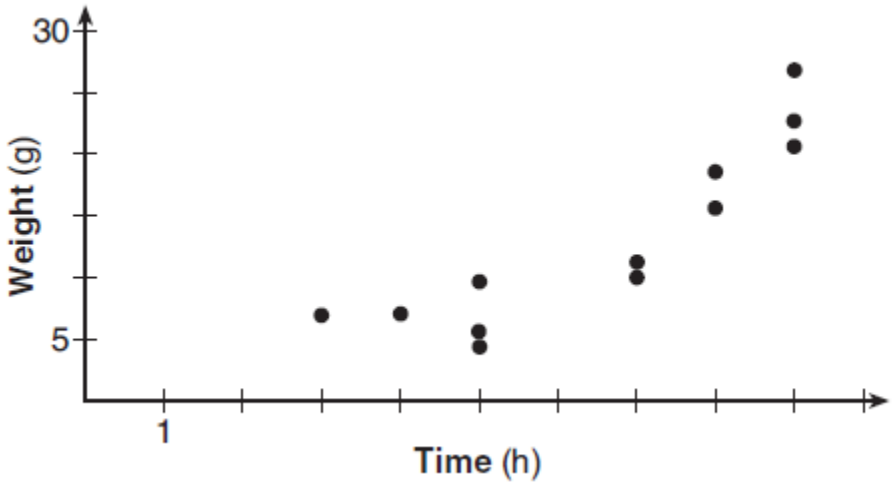
Algebra 2CC Name _____
More Exponential Graphs HW

1.) A scatterplot showing the weight, *w*, in grams, of each crystal after growing t hours is shown below.



The relationship between weight, *w*, and time, *t*, is best modeled by

(A) $w = 4^t + 5$ (B) $w = 1.4^t + 2$ (C) $w = 5(2.1)^t$ (D) $w = 8(0.75)^t$

2.) A runner is using a nine-week training app to prepare for a "fun run". The table below shows the amount of the program completed, A, and the distance covered in the session, D.

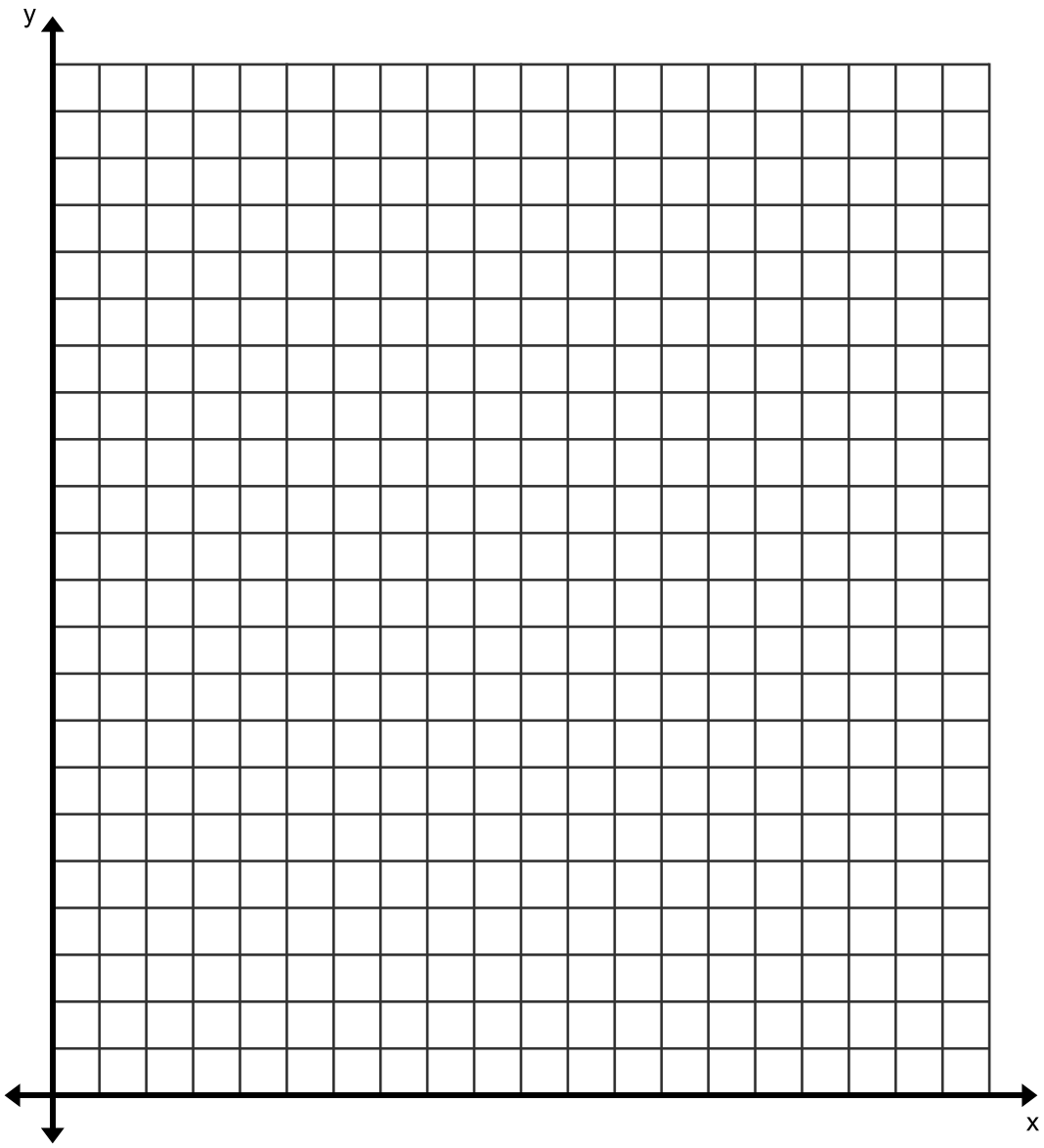
A	$\frac{4}{9}$	$\frac{5}{9}$	$\frac{6}{9}$	$\frac{8}{9}$	1
D	2	2	2.25	3	3.25

Based on these data, write an exponential regression equation, ***rounded to the nearest thousandth*** to model the distance the runner is able to complete in a session as she continues the nine-week program.

3.) The value of a certain small passenger car based on its use in years is modeled by $V(t) = 22{,}000(0.9)^t$, where $V(t)$ is the value in dollars and t is the time in years.

Dan had to take out a loan to purchase the small passenger car.
The function $L(t) = 17{,}000(0.95)^t$, where $L(t)$ is measured in dollars, and t is the time in years, models the unpaid amount of Zach's loan over time.

a. Graph $V(t)$ and $L(t)$ over the interval $0 \le t \le 6$, on the set of axes below.



b. State when $V(t) = L(t)$, *to the nearest hundredth*, and **interpret** its meaning in the context of the problem.

c. How many years later will the **value** of Dan's car to be worth $10,000. *Round to the nearest tenth*.

4.) The populations of two small towns at the beginning of 2018 and their annual population growth rate are shown in the table below.

Town	Population	Annual Population Growth Rate
Jonesville	1240	6% increase
Williamstown	890	11% increase

Assuming the trend continues, approximately how many years after the beginning of 2018 will it take for the populations to be equal?

(A) 7 (B) 20 (C) 68 (D) 125