20 Jason has not been doing upkeep on his yard and it is starting to overgrow with weeds. Last week there were 4 weeds in his yard and the amount of weeds is doubling every week. How many weeds will be in his yard by the end of school (10 weeks from now)

$y = 4(2)^x$

$4(2)^{10} = 4096$

14 The population of Marietta in 1995 was 29,862. The city has been growing at a steady rate of 2.7%. Find out what the population of Marietta would be in 2021.

$y = 29862(1.027)^x$

$29862(1.027)^{26} =$

59,697

18 Victor buys a new car that costs $40,000. The car is expected to depreciate at a rate of 20% per year. Determine what the value of the car will be after 8 years.

$y = 40000(.8)^x$

$40000(.8)^8$

$6710.87

17 A colony of 100 ants can increase by twice the amount in a month. How many ants will be in the colony after 10 months?

$y = 100(2)^x$

$100(2)^{10}$

102,400

16 You purchased a car for $19,500. The car will depreciate at a rate of 12% each year. How much will your car be worth after 6 years?

$y = 19500(.88)^x$

$19500(.88)^6$

$9055.88

15 You invest $500 in an account that will pay 4% interest annually. How much money will you have at the end of 7 years?

$y = 500(1.04)$

$500(1.04)^7$

$657.97

14 There is a small town in California whose population decreases 1.1% each year. In 2000 there were currently 23,400 residents that live there. How many people are living there now?

$y = 23400(.989)^x$

$23400(.989)^{18}$

19,176

13 You just bought a brand new ATV for $8,000. After five years you decide to want to sell it. The ATV depreciated in value 3.2% each year. About how much money is your ATV worth now?

$y = 8000(.968)^x$

$8000(.968)^5$

$6749.34

12 Victoria graduated high school in 2021 and put the $750 she got for a graduation present into a bank account that earns 4% interest. How much would she have in 2030?

$y = 750(1.04)^x$

$750(1.04)^9$

$1,067.48

11 Josh has $3500 of money to invest. His bank offers 5.25% interest. How much money will Josh have if he leaves his money in the bank for 6 years?

$y = 3500(1.0525)^x$

$3500(1.0525)^6$

$4757.74

10 What is the equation of a percent growth exponential function?

$y = P(1+\%)^x$

9 What is the equation of a percent decay exponential function?

$y = P(1-\%)^x$

8 What is the **percent growth** of the following equation?

$y = 12000(1.062)^x$

6.2%

7 What is the **percent decay** of the following equation?

$y = 12000(.93)^x$

7%

6 What is the **percent decay** of the following equation?

$y = 120(.80)^x$

20%

5 Kimberly started a business selling gourmet cupcakes at the school store. Initially she made a profit of $35 and expects her profits to increase by 5% each week. How many weeks will it take for her to make over $100 profit?

$y = 35(1.05)^x$

8 weeks

4 A scientist is working on a cure for a cancer. He started with a petri dish of 500 cancer cells and discovered that his vaccine is killing the cancer cells at a rate of ½ every day. How many days will it take to get the cancer cells down to less than 10?

$y = 500(\frac{1}{2})^x$

6 DAYS

3 Bridget is starting a business selling workout supplements. She starts the business with her friend Katie. They each agree to sign up three new clients each week to work for them. How many weeks will it take for them to have over 100 clients?

$y = 2(3)^x$

5 weeks

2

Which of the following represent growth problems?

A) $y = 6\left(\frac{1}{2}\right)^x$	B) $y = \frac{1}{2}(1.06)^x$
C) $y = 6(1 - 0.6)^x$	D) $y = 6(.8)^x$

B

1

Which of the following represent decay problems?

A) $y = 6\left(\frac{1}{2}\right)^x$	B) $y = \frac{1}{2}(1.06)^x$
C) $y = 6(1 - 0.6)^x$	D) $y = 6(.8)^x$

A, C, D