

1

Exponential Growth and Decay

Quinton just read that his computer, which costs \$2,500 new, loses 10% of its value every year. If this estimate is accurate, how much will the computer be worth in 15 years?

© Marie De Los Reyes, "Algebra Accents"

2

Exponential Growth and Decay

A fashion blog has 22,000 page views so far. In addition, that number continues to grow 25% every week. How many page views will the blog have in 2 weeks?

© Marie De Los Reyes, "Algebra Accents"

3

Exponential Growth and Decay

The half-life of a radioactive kind of element is 18 minutes. How much will be left after 36 minutes, if you start with 32 grams of it?

© Marie De Los Reyes, "Algebra Accents"

4

Exponential Growth and Decay

In Austin, the use of landlines has been declining at a rate of 20% every year. If there are 51,000 landlines this year, how many will there be in 9 years?

© Marie De Los Reyes, "Algebra Accents"

5

Exponential Growth and Decay

There is a population of 5 bacteria in a colony. If the number of bacteria doubles every 31 minutes, what will the population be 62 minutes from now?

© Marie De Los Reyes, "Algebra Accents"

6

Exponential Growth and Decay

An art gallery owns a painting that is valued at \$37,000. The gallery owner estimates that its value will increase by 10% every year. If the owner is correct, then how much will it be worth in 4 years?

© Marie De Los Reyes, "Algebra Accents"

7

Exponential Growth and Decay

Andrew deposited \$40 in a savings account earning 5% interest, compounded annually. To the nearest cent, how much will he have in 3 years?

© Marie De Los Reyes, "Algebra Accents"

8

Exponential Growth and Decay

A video posted on the internet has gone viral, and the total number of views is increasing by 20% every hour. If the video currently has 52,000 views, how many views will it have in 4 hours?

© Marie De Los Reyes, "Algebra Accents"

9

Exponential Growth and Decay

Average health premiums have been increasing at a rate of 10%. If an average family's premiums are \$14,000 this year, what will they be in 9 years?

© Marie De Los Reyes, "Algebra Accents"

10

Exponential Growth and Decay

The community theater in Sugarland has been seeing a 5% drop in attendance every year. If they sold 29,000 tickets this year, how many tickets can they expect to sell 4 years from now?

© Marie De Los Reyes, "Algebra Accents"

11

Exponential Growth and Decay

Based on past experiences, a homeowner estimates that appliances lose 35% of their resale value each year. If the estimate is accurate, how much will a refrigerator currently valued at \$2,100 be worth in 8 years?

© Marie De Los Reyes, "Algebra Accents"

12

Exponential Growth and Decay

A cup of hot water that is currently 56°C above room temperature is left out to cool. If the heat difference decreases by 5% every minute, what will the difference be in 19 minutes?

© Marie De Los Reyes, "Algebra Accents"

13

Exponential Growth and Decay

The Galveston Opera House sold 45,000 tickets this year, but it has been experiencing a 10% drop in sales from one year to the next. If this trend continues, how many tickets will the opera house sell 10 years from now?

© Marie De Los Reyes, "Algebra Accents"

14

Exponential Growth and Decay

The number of customers at a retail kiosk store has been falling 5% per month. If the store had 10,000 customers this month, how many should it expect to have 6 months from now?

© Marie De Los Reyes, "Algebra Accents"

15

Exponential Growth and Decay

Northbrook University charges \$35,000 for tuition. If they raise their tuition by 10% each year, how much will tuition be in 10 years?

© Marie De Los Reyes, "Algebra Accents"

16

Exponential Growth and Decay

A species of insect is approaching extinction. If the population is falling by 5% every year and there are currently 8,700 insects remaining, how many will there be in 5 years?

© Marie De Los Reyes, "Algebra Accents"

17

Exponential Growth and Decay

Noah lives in Houston, where the cost of living increases by 5% every year. If Noah spends \$34,000 this year, how much can he expect to spend 3 years from now to maintain the same standard of living?

© Marie De Los Reyes, "Algebra Accents"

18

Exponential Growth and Decay

Amaya is studying for final exams and just drank a cup of coffee to help her stay awake. The coffee had 91 milligrams of caffeine in it. If her body processes 10% of the caffeine every hour, how much caffeine will be left in 4 hours?

© Marie De Los Reyes, "Algebra Accents"

19

Exponential Growth and Decay

The flu is starting to hit Spring Branch. Currently, there are 120 people infected and is growing at a rate of 5% per day. How many people will have gotten the flu in 5 days?

© Marie De Los Reyes, "Algebra Accents"

20

Exponential Growth and Decay

Bradley is purchasing a new car for \$37,000. If the car loses 20% of its value every year, how much will the car be worth in 7 years?

© Marie De Los Reyes, "Algebra Accents"

21

Exponential Growth and Decay

Rodrigo has put \$9,800 into a retirement fund that has an estimated annual return of 5%. If Rodrigo doesn't add any more money, how much can he expect to have in the fund in 15 years?

© Marie De Los Reyes, "Algebra Accents"

22

Exponential Growth and Decay

Felisa currently brings in an annual salary of \$45,000 and anticipates a raise of 5% every year. What will her salary be in 7 years?

© Marie De Los Reyes, "Algebra Accents"

23

Exponential Growth and Decay

A comic book collector has a first-edition comic currently worth \$370. He anticipates it will grow in value at a rate of 15% per year. How much will this comic book be worth 12 years from now?

© Marie De Los Reyes, "Algebra Accents"

24

Exponential Growth and Decay

A social networking site currently has 70,000 active members. If the site loses 5% of its active members each month, how many active members can the site expect to have in 2 months?

© Marie De Los Reyes, "Algebra Accents"