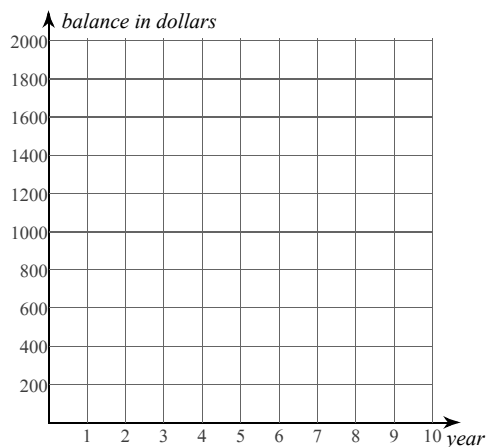


## Discrete Exponential Growth and Decay

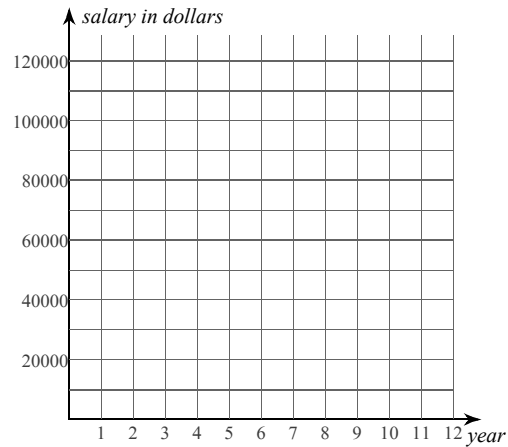
Date \_\_\_\_\_ Period \_\_\_\_\_

Solve each discrete exponential growth/decay problem. You may use the provided graph to plot points or sketch the exponential function.

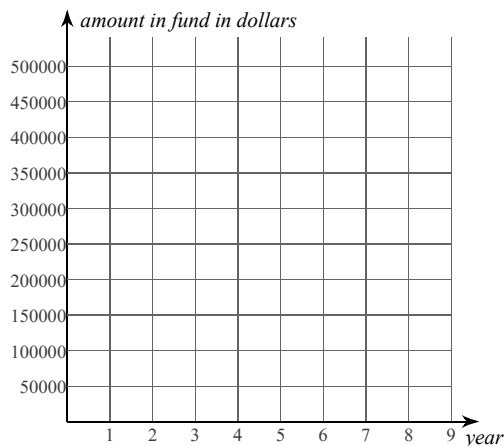
- 1) A savings account balance is compounded annually. If the interest rate is 2% per year and the current balance is \$1,430.00, what will the balance be 8 years from now?



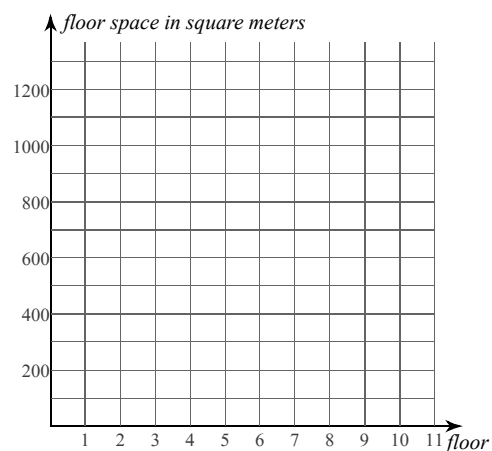
- 2) An employee receives a 4% raise once per year. If the employee's initial salary is \$72,300.00, what will the employee's salary be after 10 years?



- 3) A philanthropist pledges to donate 17% of a fund each year. If the fund initially has \$450,000.00, how much will the fund have after 7 years?



- 4) An architect is designing a tapered office tower where the ground floor (floor 0) is the largest and the floor space is reduced by 5% per floor. If the ground floor has an area of 1,140.0 m<sup>2</sup>, what is the area of the 9th floor?



**Solve each discrete exponential growth/decay problem.**

- 5) Rentals in a high rise apartment building get more expensive higher up, since the views get better. The ground floor (floor 0) rent is \$1,680.00. The rent increases 4.7% per floor. On what floor is the rent \$4,209.62?
- 6) For tax purposes, a car rental company assumes each car in their fleet depreciates by 5.5% per year. If the initial value of a car is \$21,300.00, in how many years will the value depreciate to \$8,615.66?

**Solve each discrete exponential growth/decay problem. Round your answer to the nearest percent.**

- 7) A new social media site is increasing its user base by a constant percentage per month. If the user base grows from 29,130 users to 52,167 users over 10 months, at what monthly rate is the user base increasing?
- 8) A rubber bouncy ball is dropped from a height of 115.00 inches onto a hard flat floor. After each bounce, the ball returns to a height that is a constant percentage less than the previous maximum height. After the 19th bounce, the ball reaches a maximum height of 3.34 inches. At what percentage does the maximum ball height reduce per bounce?