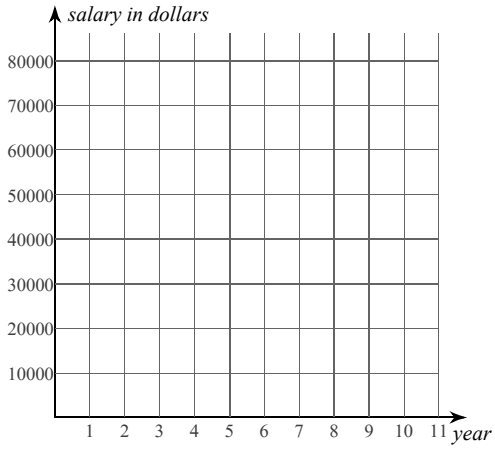
Candle Center - Infinite Algebra 1 Name_____

# Discrete Exponential Growth and Decay

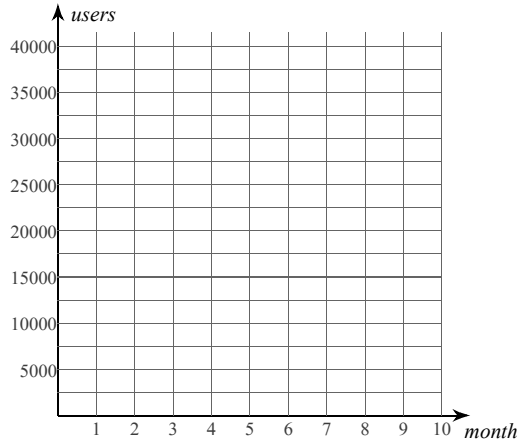
Date_____ Period____

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

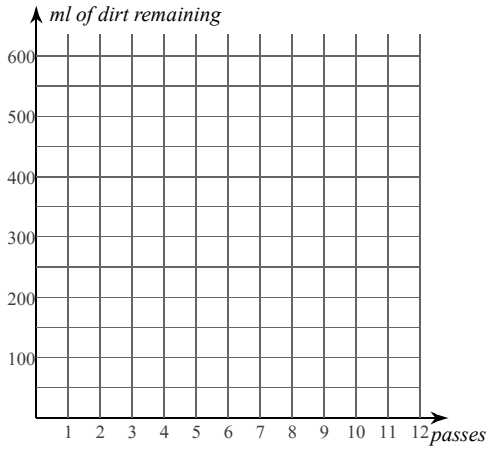
1) An employee receives a 2% raise once per year. If the employee's initial salary is $60,000.00, what will the employee's salary be after 9 years?



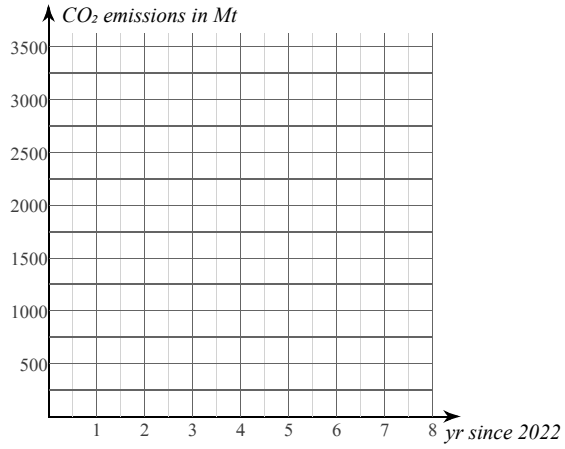

2) A new social media site is increasing its user base by approximately 6% per month. If the site currently has 21,740 users, what will the approximate user base be 8 months from now?




3) A robot vacuum cleans a dirty floor using multiple passes. During each pass, 22% of the dirt is removed. If the floor initially has 530.0 ml of dirt, how much dirt will remain after 10 passes?




4) A country pledges to reduce its annual $CO_2$ emissions by 3% per year. If the emissions in 2022 are 3,030 Mt (metric megatons), what are the maximum allowable emissions in the year 2028?



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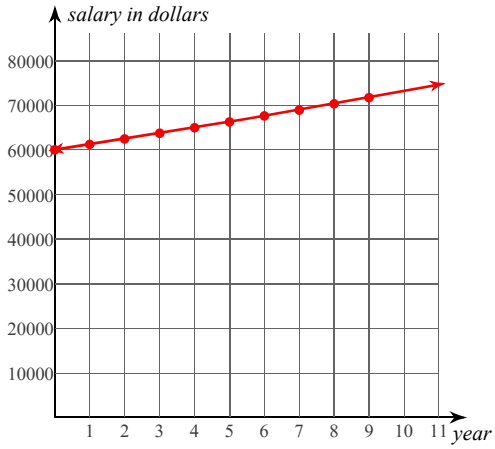
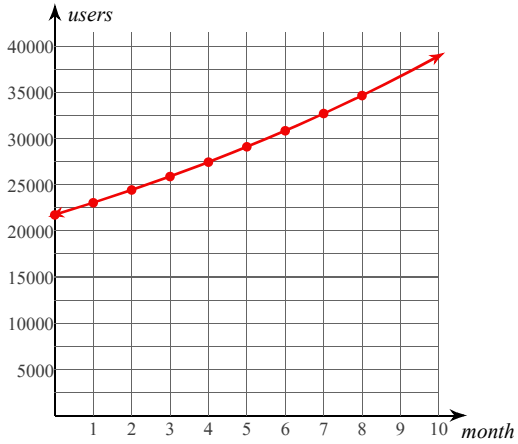


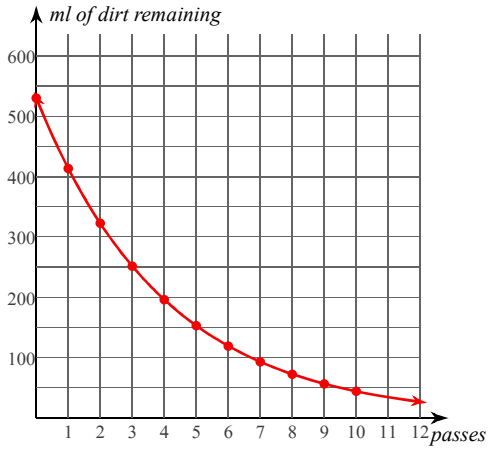

$60000 \cdot 1.02^{9} \approx \$71,705.55$

2) A new social media site is increasing its user base by approximately 6% per month. If the site currently has 21,740 users, what will the approximate user base be 8 months from now?



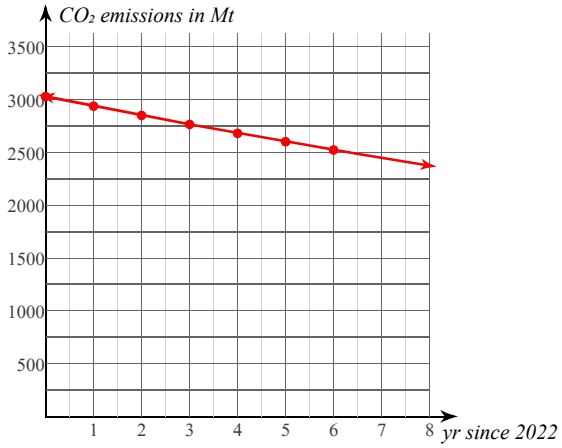

$21740 \cdot 1.06^{8} \approx 34,650$ users

3) A robot vacuum cleans a dirty floor using multiple passes. During each pass, 22% of the dirt is removed. If the floor initially has 530.0 ml of dirt, how much dirt will remain after 10 passes?




$530 \cdot 0.78^{10} \approx 44.2$ ml

4) A country pledges to reduce its annual $CO_2$ emissions by 3% per year. If the emissions in 2022 are 3,030 Mt (metric megatons), what are the maximum allowable emissions in the year 2028?




$3030 \cdot 0.97^{6} \approx 2,524$ Mt