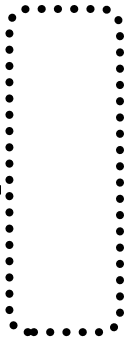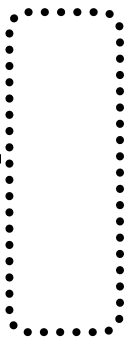# Exponential *Growth*

EX. Eli deposits $600 into an account that increases by 3% each year. How much money will he have in 10 years?

[ ]

y = final amount
a = initial amount
r = rate (as a decimal)
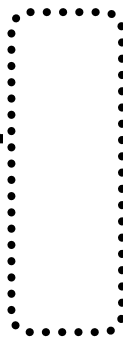t = time

Exponential *Decay*

EX. Emma buys a new car for $42,000 that decreases in value by 8.5% each year. What is the value of the car after 5 years?

[ ]

y = final amount
a = initial amount
r = rate (as a decimal)
t = time

Compound *Interest*

EX. Manny deposits $250 into an account that earns 2.5% interest compounded monthly. How much money will he have in 18 years?

[ ]

A = current amount
P = Principal (initial) amount
r = rate (as a decimal)
n = # of compounds/yr
t = time

Fold Here

Glue Here

1. The cost of tuition at a local university is $13,500 and is increasing at 9% each year. Write and use an exponential function to find the cost of the tuition after 5 years.

2. Hank got a job that starts at $46,000 per year and he will get a 2.5% annual raise. If he works there for 20 years, write and use an exponential equation to find his final salary.

3. A small town is losing about 0.4% of its population every year. In 2000, the population was 12,847. Write and use an exponential equation to predict the population in 2025.

4. A new truck costs $68,975 and depreciates at a rate of 11% each year. Write and use an exponential equation to find the value of the truck after 7 years.

5. The day Andy was born, his grandparents put $1,000 into a savings account that earns 6% interest, compounded quarterly. Find the value of the investment when Andy turns 18.

6. Jose invests $1,400 into an account that earns 3.6% interest, compounded weekly. Find the value of the account after 60 months.

EXPONENTIAL Applications