Homework

Modeling with Tic-Tac-Toe: Choose any three problems to complete following tic-tac-toe order. If you get all three right you win, if not I win! Choose Wisely!

Liza was given $1000 when she graduated from high school. She decided to invest it in a savings account earning 8% interest compounded annually to put towards her master's degree in the future. How much money will Liza have in ten years? (DOK 2) Equation: $A=1000\left(1+\frac{.08}{1}\right)^{10}$ Solution: $2159.92	River High School is overrun with cockroaches. Resources show that a thriving population of 4400 roaches are crawling through the walls. The exterminator sets up a device to help eliminate the problem which is expected to decrease the population by 12% each week. How many roaches will they have in 6 weeks? (DOK 2) Equation: $y=4400(1-.12)^6$ Solution: 2044 Roaches	Sarah's business ended up earning $10,000 profit its first year open It is expected to triple its profit by 2025. How much will Sarah be making in 2025? ~~(Current year is 2019).~~ ok (DOK 1) $y=ab^x$ Equation: $y=10{,}000(3)^6$ Solution: $7,290,000
Elk were re-introduced in north Carolina in 2001. That year, they brought in 25 elk, the following year they brought in 27. Each additional year, the population of elk increased 6%. How many elk can we predict are in North Carolina this year? (DOK 3) Equation: $y=52(1+.06)^{17}$ Solution: 140 elk	Determine the balance of a $500 investment at 8% interested compounded quarterly after seven years. (DOK 1) Equation: $A=500\left(1+\frac{.08}{4}\right)^{28}$ Solution: $870.51	Brad has accumulated a lot of debt buying video games over the years. He currently has a balance of $4200 on his credit card but plans to pay half his debt each week. How much will Brad have left in six weeks? (DOK 1) Equation: $y=4200\left(\frac{1}{2}\right)^6$ Solution: $65.63
Randy bought a motorcycle with his first paycheck at his new job. The motorcycle cost $17,000 and depreciates in value by 7% each year. How much will it be worth in five years when he is ready to trade it in? (DOK 2) Equation: $y=17000(1-.07)^5$ Solution: $11826.70	The population of Marietta has increased by 6% since you moved here in 2001. If the current population is 61,048, what was it when you first moved? (Current year is 2019). (DOK 3) Equation: [illegible] Solution: 21,388 people	If you invest $2000 in a savings account with 10% interest compounded monthly, How much will you have in eight years? (DOK 2) Equation: $A=2000\left(1+\frac{.10}{12}\right)^{96}$ Solution: $4436.35

2002 ↓ 2019

$61{,}048=a(1+.06)^{18}$

$y=ab^x$

$y=a(1+r)^x$

$A=P\left(1+\frac{r}{n}\right)^{nt}$

$y=a(1-r)^x$ OR $y=a(1+r)^x$