Name
SHOW AS MUCH WORK AS POSSIBLE BECAUSE YOU MAY RECEIVE PARTIAL CREDIT FOR THE WORK YOU DO IF YOUR ANSWER IS INCORRECT.

(Express your answers in dollars and cents, rounded to the nearest cent.)

1. A new truck is purchased for $22,000, and it will depreciate in value by 25% each year.
    a. What percentage of its value does it <u>retain</u> each year?   75%

    b. How much will the truck be worth 5 years from now? $5220.70

$$A(t) = P \cdot (1-r)^t$$
$$A(5) = 22000 \cdot (1-0.25)^5 = 5220.70$$

2. A local credit union offers a 5-year CD at 6% APR compounded monthly and a local bank offers a 5-year CD at 5.9% APR compounded continuously. If you invest $1000 in each, how much will each be worth in 5 years?

Credit union:
$$A(t) = P \cdot \left(1 + \tfrac{r}{m}\right)^{mt}$$
$$A(5) = 1000 \cdot \left(1 + \tfrac{0.06}{12}\right)^{12 \cdot 5} = 1348.85$$

$1348.85

Bank:
$$A(t) = P \cdot e^{rt}$$
$$A(t) = 1000 \cdot e^{0.059 \cdot 5} = 1343.13$$

$1343.13