

1. In 1996, there were 2573 computer viruses and other computer security incidents. During the following years, the number of incidents increased by about 92% each year.

a. Write an exponential model giving the number of incidents t years after 1996.

$$y = 2573(1.92)^t$$

b. About how many incidents were there in 2017?

2, 289, 631, 488 incidents

c. In what year were there about 500,000 incidents?

$$t \approx 8.08 \text{ yrs}$$

2. In 2000, the average price of a football ticket for Minnesota Viking's game was \$48.28. During the following years, the price increased an average of 6% each year.

a. Write a model giving the average price (in dollars) of ticket t years after 2000.

$$y = 48.28(1.06)^t$$

b. Estimate the year when the average price of a ticket was about \$100.

$$t \approx 12.5 \text{ yrs}$$

3. A new snowmobile costs \$4200. The value of the snowmobile decreases by 10% each year.

a. What will the value of the snowmobile be after 28 years? Is this a reasonable value? Explain.

$$\$219.81$$

b. Estimate when the value of the snowmobile will be \$2500.

$$t \approx 4.9 \text{ yrs}$$

4. You deposit \$5500 in an account that pays 1.7% annual interest.

a. Find the balance after 2 years if interest is compounded:

i. Monthly?

$$\$ 5690.08$$

ii. Semiannually?

$$\$ 5689.40$$

iii. Quarterly?

$$\$ 5689.81$$

iv. Weekly?

$$\$ 5690.18$$

v. Continuously?

$$\$ 5690.22$$

b. Approximately how many years would it take for your account balance to be \$10,000, if compounded quarterly?

$$t = 35.24 \text{ yrs}$$

c. Approximately how many years would it take for your account balance to be \$10,000, if compounded continuously?

$$t = 35.16 \text{ yrs}$$