1. Tuition at a private college in 1990 was $15,000. Tuition has increased 7.2% each year. Round each answer to the nearest cent.

$100\% + 7.2\% = 107.2\%$

$b = 1.072$

a) Find the tuition in 2014.

$15,000(1.072)^{24} = \$79,573.07$

b) Find the tuition in 1985.

$15,000(1.072)^{-5} = \$10,595.40$

2. The number of a certain bacteria doubles every 15 minutes. If there are 20 baceria on your kitchen counter at 7:00am how many will there be when come home at 4:00pm? Round to the nearest whole number.

$20(2)^{36}$

1.37×10^{12}

$9\,hrs = 540\,min$

$\dfrac{\div 15\,min}{36}$

3. The half-life of a certain medication is 40 minutes. If you take a 150mg dose at 9:00pm how much will there be in your system at 6:00 am the next day? Round to the nearest tenth.

$150(.5)^{13.5}$

$.01\,mg$

$9\,hrs \times \dfrac{60\,min}{hr} = 540\,min$

$\dfrac{\div 40\,min}{13.5}$

4. The number of land-lines in a part of the country has been decreasing 21.2% each year. There were 45,000 land-lines in 2003. Round answers to the nearest whole number.

$100\% - 21.2\%$ 78.8% $b = .788$

a) How many land-lines were there in 1999?

$45,000(.788)^{-4} = 116,710$

b) How many land-lines will there be in 2014?

$45,000(.788)^{11} = 3223$