#84

Name Key
8A; Algebra 1

Date _____
Period _____

Homework

1) In 2003, the population of a city was 16,000. The population increased by 25% in each of the next two years. If this rate of increase continues, what will be the population of the city in 2009?

$A = P(1+r)^n$

$A = 16{,}000(1+25\%)^6$

$A = 16{,}000(1+.25)^6$

$A = 16{,}000(1.25)^6$

$A = 61035.15\overline{25}$

61,035 people

4 Don't round

2) Alberto invested $5,000 at 6% interest compounded annually. What will be the value of Alberto's investment after 8 years?

$A = P(1+r)^n$

$A = 5000(1+6\%)^8$

$A = 5000(1+.06)^8$

$A = 5000(1.06)^8$

$A = 7969.240373$

$7,969.24

4 nearest hundredth

3) Mrs. Smith has a trust fund from which she withdraws 5% each year. If the fund has a value of $50,000 this year, what will be the value of the fund after 10 years?

$A = P(1-r)^n$

$A = 50{,}000(1-5\%)^{10}$

$A = 50{,}000(1-.05)^{10}$

$A = 50{,}000(.95)^{10}$

$A = 29936.84696$

$29,936.85

4 nearest hundredth

4) Kathy plans to purchase a car that depreciates at a rate of 14% per year. The initial cost of the car is $21,000. What is the value of the car after 3 years?

$A = P(1-r)^n$

$A = 21{,}000(1-14\%)^3$

$A = 21{,}000(1-.14)^3$

$A = 21{,}000(0.86)^3$

$A = 13357.176$

$13,357.18

4 nearest hundredth

5) You purchase an I-pod for $70. After you take it home from the store, the value of the I-Pod decreases 3% each year. What is the value of the I-Pod after 2 years?

P, R, N

$A = P(1-r)^n$

$A = 70(1-3\%)^2$

$A = 70(1-.03)^2$

$A = 70(.97)^2$

$A = 65.863$

* nearest hundredth

$65.86

6) Raymond buys a new car for $21,500. The car depreciates by about 11% per year. What is the value of the car after 5 years? Round to the nearest dollar.

P, decreases, R, N, → nearest whole #

$A = P(1-r)^t$

$A = 21,500(1-11\%)^5$

$A = 21,500(1-.11)^5$

$A = 21,500(.89)^5$

$A = 12005.72782$

$12,006

7) A bank advertised a rate of 15% interest compounded annually on one of its CD's. If a 3 year old CD is NOW WORTH $11,495.60, find it ORIGINAL price.

R, Increases, N

A, P

$A = P(1+r)^n$

$11,495.60 = P(1+15\%)^3$

$11,495.60 = P(1+.15)^3$

$\frac{11,495.60}{(1.15)^3} = \frac{P(1.15)^3}{(1.15)^3}$

$P = 7558.543602$

$7558.54

$ is always to the nearest hundredth