

Name _____

Date _____

1) Food poisoning is often caused by E. coli bacteria. To test for the presence of E. coli in a pot of beef stew, a biologist performs a bacteria count on a small sample of the stew kept at 25°C. She determines the count is 5 units per millilitre and the number will double every 40 minutes.

(a) Find the hourly growth factor a and find an exponential model $f(t) = Ca^t$ for the bacteria count in the beef stew.

2) Larry invested \$27,000 in a savings account that pays an annual interest rate of 1.8%. The savings account is set to compound quarterly (4 times per year). How much is in Larry's account after 5 years?

_____ times per year

After 5 years = _____ \$

3) Becky invested \$19,800 in a CD that pays an annual interest rate of 5.3%. The CD is set to compound daily. How much is in Becky's account after 9 years?

_____ times per year

After 9 years = _____ \$

4) Jake invests in an annuity with an annual fixed interest rate of 6.2%. The annuity compounds monthly. If after 10 years, the account balance is \$27,839.45 how much was the beginning investment?

_____ times per year

Beginning balance = _____ \$

Compound Interest

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

Where,

P = principal amount (generated by *Compound Hustle*)
r = annual nominal interest rate (as a decimal)
n = number of times the interest is compounded per year
t = number of years

1) Evan opened a savings account and deposited \$200.00 as principal. The account earns 15% interest, compounded annually. What is the balance after 3 years?

Round your answer to the nearest cent.

\$ _____

2) Deb puts \$200.00 into an account to use for school expenses. The account earns 9% interest, compounded annually. How much will be in the account after 4 years?

\$ _____

3) Sandeep opened a savings account and deposited \$100.00. The account earns 14% interest, compounded annually. If he wants to use the money to buy a new bicycle in 3 years, how much will he be able to spend on the bike?

\$ _____

4) Dylan and Irma deposit \$500.00 into a savings account which earns 8% interest compounded annually. They want to use the money in the account to go on a trip in 3 years. How much will they be able to spend?

\$ _____