Compound Interest Practice:

1) **Set up a compound interest expression for each set of given values. (Do not evaluate.)**

a) How much money will we have in 12 years if we invest $4,000 in an account earning 2.5% compounded annually?

 

b) How much money will we have in 9 years if we invest $6,700 in an account earning 4% compounded quarterly?

 

c) How much money will we have in 18 years if we invest $1,200 in an account earning 5.3% compounded continuously?

 

2) **Set up and solve each compound interest problem. (Exact solutions only.)**

a) How much money do we need to deposit in order to have $5,000 at the end of 6 years in an account earning 3.4 % compounded continuously?

  Divide to solve for P =

 

b) How much money do we need to deposit in order to have $2,000 at the end of 3 years in an account earning 1.9 % compounded monthly?

  Divide to solve for P =

 

c) What rate of interest is required to double our money in 10 years in an account earning interest on an annual basis?

  (any starting amount may be used)

 (divide both sides of the equation by this principal ‘P’)

  (take the 10th root of each side of the equation)

  (solve for ‘R’)

 

d) What rate of interest is required to double our money in 10 years in an account earning interest compounded quarterly?

  (any starting amount may be used)

 (divide both sides of the equation by this principal ‘P’)

  (take the 40th root of each side of the equation)

  (solve for ‘R’)

 

 

3) **Set up a compound interest expression for each set of given values. Solve for t using common or natural logarithms. (Show your work.)**

a) How long will it take for $2,500 to increase to $4,000 in an account earning 3.2% compounded annually?

  (divide by 2,500)

  (take the log of both sides of the equation)

 (use log or use ln pick one only)

  (exponent can ‘come down’/ log property)

  (solve for ‘t’ by dividing)

  or 

b) How long will it take for $500 to increase to $600 in an account earning 4.7% compounded monthly?

  (divide by 500)

  (take the log of both sides of the equation)

 (use log or use ln pick one only)

  (exponent can ‘come down’/ log property)

  (solve for ‘t’ by dividing)

 

c) How long will it take to double our money in an account earning 4.1% compounded continuously?

  (any starting amount may be used)

 (Divide by ‘P’)

  (take the log of both sides of the equation)

 (use log or use ln pick one only)

  or  (better choice for this problem)

  

  

d) How long will it take to triple our money in an account earning 2.8% compounded continuously?

  (any starting amount may be used)

 (Divide by ‘P’)

  (take the log of both sides of the equation)

 (use log or use ln pick one only)

  or  (better choice for this problem)

  

  