

Solve the following using the formula for compounding continuously. Show all work for credit.

- 1) a) If Columbus invested 1¢ (\$0.01) at 2% interest with a Native American banker when he landed in the 'New World',
how much would be in the account today rounded to the nearest cent?

$$0.01e^{((2001-1492)*0.02)}$$

1a) \$263.70

- b) If Columbus invested 1¢ (\$0.01) at 4% interest with a Native American banker when he landed in the 'New World',
how much would be in the account today rounded to the nearest cent?

$$0.01e^{((2001-1492)*0.04)}$$

1b) \$6954015.46

- c) If Columbus invested 1¢ (\$0.01) with a Native American banker when he landed in the 'New World',
at what interest percent rate would he need to find to have a billion dollars today?
(Note: Write the answer as a percent rounded to 2 decimal places.)

$$\ln(1000000000/0.01)/(2001-1492)$$

1c) 4.98 %

- 2) If today you invested 50¢ (\$0.50) at 4.5% interest, how many years will it take to accumulate to \$1,000,000 ?
(Round to the nearest tenth of a year.)

$$\ln(1000000/0.5)/(0.045)$$

2) 322.4 years