

$$A = P(1 \pm r)^t$$

A = after amount
 P = initial/starting amount
 r = rate (as a decimal)

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 Algebra II

Creating and Solving Simple Exponential Functions ^{t = time}

1. Cassandra bought an antique dresser for \$500. If the value of her dresser increases 6% annually, what will be the value of Cassandra's dresser at the end of 3 years to the nearest dollar?

$A = A$
 $P = 500$
 $r = .06$
 $t = 3$

$$A = 500(1 + .06)^3$$

$A = 596$

2. A certain car depreciates at a rate of 15% each year. If the car was initially worth \$8125, what is the value of the car, rounded to the nearest cent, 11 years later?

$A = A$
 $P = 8125$
 $r = .15$
 $t = 11$

$$A = 8125(1 - .15)^{11}$$

~~$A = 1356$~~
 $A = 1359.66$

3. Cameron invests \$1,227 in stocks and her money increases by 9% each year. What will be the value of her investment 18 years later?

$A = A$
 $P = 1227$
 $r = .09$
 $t = 18$

$$A = 1227(1 + .09)^{18}$$

$A = 5787.91$

4. Kathy plans to purchase a car that depreciates (loses value) 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 rounded to the nearest cent?

$A = A$
 $P = 21,000$
 $r = .14$
 $t = 3$

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

$A = 13357.18$

5. Marissa deposits \$2000 into a bank account with pays an annual interest rate of 4.6%. How much money, to the nearest cent, will she have in the account after 8 years?

$A = A$
 $P = 2000$
 $r = .046$
 $t = 8$

$$A = 2000(1 + .046)^8$$

$A = 2866.05$

$$A = P(1 \pm r)^t$$

6. A bank is advertising that new customers can open a savings account with a 3.75% interest rate compounded annually. Robert invests \$5,000 in an account at this rate. If he makes no additional deposits or withdrawals on his account, find the amount of money he will have, to the nearest cent, after three years.

$$\begin{aligned} A &= A \\ P &= 5000 \\ r &= .0375 \\ t &= 3 \end{aligned}$$

$$A = 5000(1 + .0375)^3$$

$$A = 5583.86$$

7. The value of a truck bought new for \$28,000 decreases 9.5% each year. Write an exponential function to represent this function and predict the value of the truck to the nearest cent after 10 years.

$$\begin{aligned} A &= A \\ P &= 28000 \\ r &= .095 \\ t &= 10 \end{aligned}$$

$$A = 28000(1 - .095)^{10}$$

$$A = 10,319.15$$

8. A car worth \$20,000 depreciates at a rate of 8.75% each year. Find the value of the car after 11 years to the nearest cent?

$$\begin{aligned} A &= A \\ P &= 20,000 \\ r &= .0875 \\ t &= 11 \end{aligned}$$

$$A = 20,000(1 - .0875)^{11}$$

$$A = 7304.52$$

9. Jeff deposits \$8750 into a bank account with pays an annual interest rate of 1.5%. How much money, to the nearest cent, will he have in the account after 12 years?

$$\begin{aligned} A &= A \\ P &= 8750 \\ r &= .015 \\ t &= 12 \end{aligned}$$

$$A = 8750(1 + .015)^{12}$$

$$A = 10,461.66$$

10. A car worth \$41,235 depreciates at a rate of 11.5% each year. Find the value of the car after 7 years to the nearest cent?

$$\begin{aligned} A &= A \\ P &= 41,235 \\ r &= .115 \\ t &= 7 \end{aligned}$$

$$A = 41,235(1 - .115)^7$$

$$A = 17533.51$$