6.6   Simple & Compound Interest (Part 2)

Compound interest is paid on the initial principal and on interest earned in the past.

Example: What is the total amount of money in an account where $600 is invested at an interest rate of 8.75% compounded annually for 2 years?

$$I = prt = (600)(0.0875)(1) = 52.5$$

$$600 + 52.50 = \$652.50$$

1st year

$$I = prt = (652.50)(0.0875)(1) = 57.09375$$

$$652.50 + 57.09375 = \$709.59375$$

2nd year

$$\boxed{\$709.59}$$

Example: What is total amount of money in an account where $800 is invested at an interest rate of 6.25% compounded annually for 2 years?

$$I = prt = (800)(0.0625)(1) = 50$$

$$800 + 50 = 850$$

$$I = prt = (850)(0.0625)(1) = 53.125$$

$$850 + 53.125 = 903.125$$

$$\boxed{\$903.13}$$

Example: What is the total amount of money in an account where $5000 is invested at an interest rate of 5% compounded annually after 3 years?

$$I = prt = (5000)(0.05)(1) = 250$$
$$5000 + 250 = 5250$$

$$I = prt = (5250)(0.05)(1) = 262.5$$
$$5250 + 262.50 = 5512.50$$

$$I = prt = (5512.50)(0.05)(1) = 275.625$$
$$5512.50 + 275.625 = 5788.125$$

$$\boxed{\$5788.13}$$

Example: Find the total amount in each account to the nearest cent if the interest is compounded annually.

$480 at 5% for 3 years

$$I = prt = (480)(0.05)(1) = 24$$
$$480 + 24 = 504$$

$$I = prt = (504)(0.05)(1) = 25.20$$
$$504 + 25.20 = 529.20$$

$$I = prt = (529.20)(0.05)(1) = 26.46$$
$$529.20 + 26.46 = \boxed{\$555.66}$$