

Objective: TSWBAT- find compound interest

### Vocabulary

- ① interest - money paid for the use of your money
- ② interest rate - interest calculated at a certain percentage
- ③ principal - the original amount deposited or borrowed

### Formula

- ④ balance - is the principal + interest earned
- ⑤ Compound interest - interest paid on the original principal and on any interest that has been left in the account

### Formula

$$B = P(1+r)^n$$

B is the final balance

P is the principal

r is the interest rate per period

n is the number of interest periods

Kelly plans to put her graduation money into an account and leave it there for 4 years while she goes to college. She receives \$750 in graduation money that she puts it into an account that earns 4.25% interest compounded semi-annually. How much will be in Kelly's account at the end of four years?

$$B = 750 (1 + .02125)^8 = \$887.40$$

Suppose Karen has \$1000 that she invests in an account that pays 3.5% interest compounded quarterly. How much money does Karen have at the end of 5 years?

$$B = 1,000 (1 + .00875)^{20} = 1,190.34$$

## More Compound Interest Problems

- ① \$10,000 compounded semiannually for 3 yrs at 8%

$$B = P(1+r)^N$$

$$B = 10,000(1+.04)^6$$

$$B = 12,653.19$$

- ② \$4,500 compounded quarterly for 4 yrs at 6%

$$B = 4,500(1+.015)^{16} = 5,710.43$$

- ③ \$8,000 compounded monthly for 2 yrs at  $6\frac{1}{4}\%$

$$B = 8,000(1+.00521)^{24} = 9,062.60$$