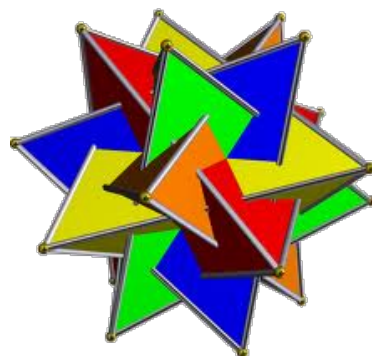


SIMPLE



Interest

COMPOUND



Simple Interest - Interest calculated as a percentage of the principal.

Compound Interest - the interest paid on the principal plus interest

Terminology Tango

daily
semi-annually
monthly
quartly



twice a year
four times a year
365 times a year
twelve times a year

[Click on the picture to verify the match.](#)



Interest = Principal x rate x time

$$I = Prt$$



Gordon wants to invest \$2000.00.
His bank offers an investment option
that earns **simple interest** at a rate of
1.75% per year.

$$I = Prt$$

$$I = (2000.00)(0.0175)(1)$$

$$I = \$35.00$$



Gordon wants to invest \$2000.00.
His bank offers an investment option
that earns **simple interest** at a rate of
1.75% per year for ~~1~~³ years.

$$I = Prt$$

$$I = (2000.00)(0.0175)(\cancel{1})(3)$$

$$I = \$105.00$$

Betty-Ann's bank offers a simple interest rate of 4% per annum. How much interest would Betty-Ann earn on her investment of \$4000 after 8 months.

$$I = Prt$$

$$I = 4000 (0.04) \left(\frac{8}{12}\right)$$

$$I = 4000 (0.04) (0.66)$$

$$I = \$106.67$$



Time
in
years!!

Use the simple interest formula to determine answer this question.

The interest earned on a deposit is \$25 with an interest rate is 6% per annum. If the money was invested for 2 years, what is the principal?



$$I = Prt$$

$$25 = P(0.06)(2)$$

$$\frac{25}{0.12} = \frac{P(0.12)}{0.12}$$

$$\$208.33 = P$$

$$P = \$208.33$$

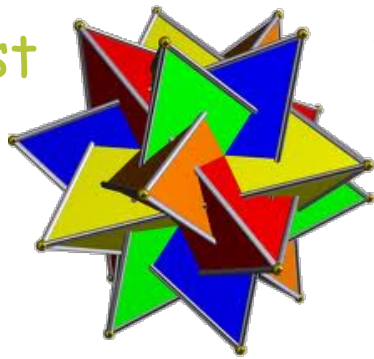
Simple Interest

$$I = Prt$$

1. Jeff wants to invest \$5000.00. His bank offers an investment option that earns simple interest at a rate of 1.5% per year. How much would he make in interest? (3 years)
2. Ava's bank offers a simple interest rate of 5% per annum. How much interest would Ava earn on her investment of \$7000.00 after 3 months?
3. The interest earned on a deposit is \$75.00 with an interest rate of %5 per annum. If the money was invested for 3 years, what is the principal?
4. Holly wants to invest \$3800.00. Her bank offers an investment option that earns simple interest at a rate of 2.5% per year. How much would he make in interest? (1 year)
5. Will's bank offers a simple interest rate of 2.75% per annum. How much interest would Will earn on his investment of 10,000.00 after 9 months?
6. The interest earned on a deposit is \$125.00 with an interest rate of 3.5% per annum. If the money was invested for 5 years, what is the principal?
7. The interest earned on a deposit is \$125.00 with an interest rate of 3.5% per annum. If the money was invested for ~~5 years~~, what is the principal?

195 days

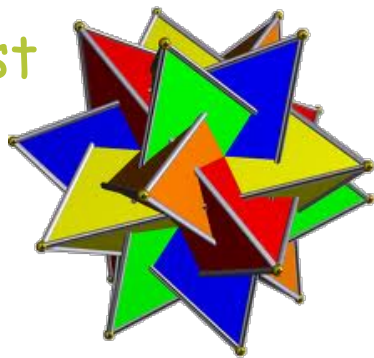
COMPOUND Interest



Allison wants to invest \$2000.00. His bank offers an investment option that earns **compound interest** at a rate of 1.75% per year compounded annually for 3 years.

Interest period	Investment value at beginning of period	Interest earned $I = Prt$	Investment value at end of period
1	\$2000	$\$2000 \times 0.0175 \times 1 = \35	\$2035
2	\$2035	$\$2035 \times 0.0175 \times 1 = \35.61	\$2070.61
3	\$2070.61	$\$2070.61 \times 0.0175 \times 1 = \36.24	\$2106.85

COMPOUND Interest



Allison wants to invest \$2000.00. His bank offers an investment option that earns **compound interest** at a rate of 1.75% per year for ~~3~~ years.

10

Interest period	Investment value at beginning of period	Interest earned $I = Prt$	Investment value at end of period
1	\$2000	$\$2000 \times 0.0175 \times 1 = \35	\$2035
2	\$2035	$\$2035 \times 0.0175 \times 1 = \35.61	\$2070.61
3	\$2070.61	$\$2070.61 \times 0.0175 \times 1 = \36.24	\$2106.85

??

Formula:

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

A = final value of the investment ...(principal + interest)

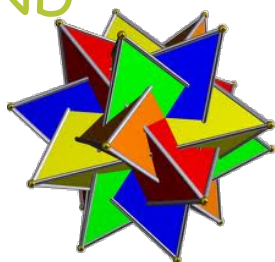
P = principal

r = annual interest rate

n = number of compounding periods in a year

t = term of the investment or loan in number of years

COMPOUND Interest



Allison wants to invest \$2000.00. Her bank offers an investment option that earns **compound interest** at a rate of 1.75% per year compounded annually for ~~3~~ years.

10



$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$A = 2000 \left(1 + \frac{0.0175}{1} \right)^{(1)(10)}$$

$$A = 2000(1 + 0.0175)^{10}$$

$$A = 2000(1.0175)^{10}$$

$$A = 2000(1.18944)$$

$$A = \$2378.89$$

Calculate the final value of an initial investment of \$6000.00. Interest is paid at 4% per annum, compounded semi-annually, for three years.

A = final value of the investment ...(principal + interest)
P = principal
r = annual interest rate
n = number of compounding periods in a year
t = term of the investment or loan in number of years

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$
$$A = 6000 \left(1 + \frac{0.04}{2} \right)^{(2)(3)}$$
$$A = 6000(1 + 0.02)^6$$
$$A = 6000(1.02)^6$$
$$A = 6000(1.1262)$$
$$A = \$6756.98$$

Calculate the final value of an initial investment of \$8500.00. Interest is paid at 3.75% per annum, compounded semi-annually, for three years.

$$A = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$A = 8500 \left(1 + \frac{0.0375}{2} \right)^{2(3)}$$

$$A = 8500(1 + 0.01875)^6$$

$$A = 8500(1.01875)^6$$

$$A = 8500(0.117907)$$

$$A = 1002.21$$

Hang on....

Sheet :)



Page 112
Questions:
1-7

the
RULE
of **72**

**the
RULE
of 72**

Quick way to estimate how long it will take your money to double in value.

$$\frac{72}{\text{annual interest rate}}$$

How long will it take an investment to double with an interest rate of 3.00% per annum?

$$\frac{72}{3} = 24 \text{ years}$$

