**Simple & Compound Interest Review Problems**

1. Calculate the simple interest for each of the following:
2. $800 for 8 months at 9%/a
3. $2500 for 3a at 5%/a

Answers:

1. I = Prt

I = 800 x 0.09 x $\frac{9}{12}$

I = $54

1. I = Prt

= 2500 x 0.05 x 3

= $375

1. Calculate the future value and interest earned on each of the following investments
2. $1200 invested at 8%/a compounded semi-annually for 3 a
3. $550 invested at 6%/a compounded quarterly for 2 a

Answer

1. P = 1200

r= 0.08

n= 2

t=3

 A= P( 1 + $\frac{r}{n}$)n x t

 A = 1200( 1 + $\frac{0.08}{2}$)2x3

 A = 1200( 1.04)6

 A = 1200(1.265319…)

 A = $1518.38

I = 1518.38 – 1200

 = $318.38

1. P= 550

r = 0.06

n = 4

t = 2

 A= P( 1 + $\frac{r}{n}$)n x t

 A = 550( 1 + $\frac{.06}{4}$) 4x2

 A = 550( 1.015)8

 A = 550( 1.12649….)

 A =$ 619.57

I = 619.57 – 550

 = $69.57

1. Jared borrowed $920 from Dylan at a rate of 6.5%/a simple interest and paid Dylan back $928. How many days did Jared have the loan for?

Answer

 P = 920

 I = 928-920= 8

 r= 0.065

 t= ?

Using the triangle from the simple interest lesson

 t = $\frac{I}{Px r}$

 t = $\frac{8}{920 x 0.065}$

 t = $\frac{8}{59.8}$

 t = 0.133779… years

Change time to days t = 0.133779 x 365

 = 49 days

Jared had the loan for 49 days.

1. Tanner wants to invest $3500 for 4a. Which of the following interest rates accumulates the greatest amount of interest?
2. 16%/a compounded quarterly
3. 17%/a compounded annually
4. 20.5%/a simple interest

Answer:

1. P = 3500

r = 0.16

n = 4

t = 4

 A = 3500( 1 + $\frac{0.16}{4}$)4x4

 A = 3500( 1.04)16

 A = 3500 (1.87298..)

 A= 6555.43

I = 6555.43 – 3500

 = $3055.43

1. P = 3500

r= 0.17

n = 1

t= 4

 A = 3500( 1 + $\frac{0.17}{1}$)1x4

 A = 3500( 1.17)4

 A = 3500(1.873887..)

 A = 6558.61

I = 6558.61 – 3500

 = 3058.61

1. I = Prt

I = 3500 x 0.205 x 4

I = 2870

Option B gives the greatest amount of interest.