FINANCIAL MATHS

CANSU OLCE

A STAR MATHS (www.astarmaths.com.au)

1. Find the interest on a used car loan of $5000 at a rate of 16% for a period of 8 months.

2. Find the amount due on a loan of $600 at 15.75% interest after 21 months.

3. Find the amount owed on an investment of $10,000 into a money market account that pays a simple interest rate of 1.75% over a 39 wk period.

4. What is the annual interest rate earned by a 33-day T-bill with a maturity value of $1,000 that sells for $996.16? (Use 360 days for a year)

5. If you borrow $3000 at 14% simple interest for 10 months, how much will you owe in 10 months? How much interest will you pay?

6. A loan of $2500 was repaid at the end of 39 weeks with a check for $2812.50. What annual rate of interest was charged?

7. An accountant for a corporation forgot to pay the firm's income tax of $725,896.15 (uh-oh) on time. The government charged a penalty of 12.7% annual interest for the 34 days the money was late. Find the total amount that must be paid.

8. If an investor wants to earn an annual interest rate of 10.76% on a 26 week T-bill with a maturity value of $5,000, how much should the investor pay for the bill?

9. Jessie buys 100 shares of stock at $29.52 per share and then sells the stock 9 months later at $37.85 per share. Transaction fees are 1% of the total transaction. What annual interest rate did Jessie earn?

10. How long will it take for a CD to double, if money earns a simple interest rate of 4.8%? Round up nearest year.

11. *Given* r=12%, compounded monthly for 8 years; find n (number of months) and i (rate per month). Write i in decimal form

12. Grandparents deposited $6,000 into a grandchild's account toward a college education. How much money (to the nearest dollar) will be in the account 17 years from now if the account earns 9% compounded monthly?

13. How much should you deposit initially in an account paying 10% compounded semiannually in order to have $1,000,000 in 30 years? b) compounded monthly? c) compounded daily? d) continuous compounding

14. In the New Testament, Jesus commends a widow who contributed 2 mites (roughly 1/4 cent) to the temple treasury. Suppose the temple invested those mites at 4% compounded quarterly. How much would the money be worth 2000 years later? (1/4 cent is $0.0025)

15. Hy Rate offers a loan of $24 000 at 16% p.a. simple interest if the loan is repaid in equal monthly instalments over 5 years. a How much interest is charged on the loan? b What is the total amount of the loan and the interest? c Calculate the size of each repayment.

16. A Bank advertises $450 interest a year on an investment of $7500. Calculate the simple interest rate for this investment.

17. Jack invests $2500 at 8% p.a. simple interest, for a period of time, to produce $50 interest. For how long did he invest the money?

18. Betty and Jim plan to invest some money for their child Jill. They invest $4000 for 30 months in a bank that pays 4.5% p.a. Calculate the simple interest and the amount available at the end of the 30 months.

19. Calculate the simple interest on $7000 invested at 6 1 4 % p.a. for 18 months.

20. Calculate the simple interest earned if the principal is $1000, the rate is 5% p.a. and the time is 3 years.

ANSWER KEY

1. $533.33
2. $765.38
3. $10131.25
4. 4.2%
5. A=$3350, I=$350
6. 16.67%
7. $734483.60
8. $4744.73
9. 34.24%
10. 20.8=21 years
11. N=96 mo., i=0.01
12. $27551.32
13. a)$53535.52 b)$50409.83 c)$49807.53 d)$49707.87
14. 93×10^{30}
15. a)$19200 b)$43200 c)$720 a month
16. 6% p.a
17. 3 months
18. interest=$450 and total=$4450
19. $656.25
20. $150