**Week 7 Homework S1 2018**

|  |  |
| --- | --- |
| 1. | Payday loans are very short-term loans that charge very high interest rates. You can borrow $500 today and repay $550 in two weeks. What is the compound *annual* rate implied by this 10 percent rate charged for only two weeks?    |

2. Payday loans are very short-term loans that charge very high interest rates. You can borrow $200 today and repay $250 in two weeks. What is the compound *annual* rate implied by this 25 percent rate charged for only two weeks?

|  |
| --- |
| 3. What is the interest rate of a 4-year, annual $1,000 annuity with present value of $3,500?    |
|  |

|  |  |
| --- | --- |
| 4. | What annual interest rate would you need to earn if you wanted a $200 per month contribution to grow to $14,700 in five years?    |
| 5. | You wish to buy a $20,000 car. The dealer offers you a 5-year loan with an 8 percent APR. What are the monthly payments?    |

|  |  |
| --- | --- |
| 6. | Joey realizes that he has charged too much on his credit card and has racked up $3,000 in debt. If he can pay $150 each month and the card charges 18 percent APR (compounded monthly), how long will it take him to pay off the debt?    |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 7. | A car company is offering a choice of deals. You can receive $2,000 cash back on the purchase, or a 2 percent APR, 3-year loan. The price of the car is $17,000 and you could obtain a 3-year loan from your credit union, at 7 percent APR. Which deal is cheaper?   A. The rebate with the credit union’s 7 percent 3-year loan

|  |  |
| --- | --- |
| **B**.  | The car company's 2 percent 3-year loan.  |

|  |  |
| --- | --- |
| C.  | Neither deal is cheaper  |

|  |  |  |  |
| --- | --- | --- | --- |
| **D**. |   |  | There is not enough information given to determine which deal is cheaper.  |
|  |  |  |  |

TheTh |

|  |
| --- |
| 8. Monica has decided that she wants to build enough retirement wealth that, if invested at 7 percent per year, will provide her with $3,000 monthly income for 30 years. To date, she has saved nothing, but she still has 20 years until she retires. How much money does she need to contribute per month to reach her goal?    |
|  |

9. Hank purchased a $20,000 car two years ago using an 8 percent, 5-year loan. He has decided that he would sell the car now, if he could get a price that would pay off the balance of his loan. What is the minimum price Hank would need to receive for his car?

|  |  |
| --- | --- |
| 10. | What is the future value of a $500 annuity payment over eight years if interest rates are 14 percent?    |

11. What is the present value of a $775 annuity payment over six years if interest rates are 11 percent?

|  |  |
| --- | --- |
| 12. | What is the present value of a $1,100 payment made every year forever when interest rates are 4.5 percent?     |
| 13. | A loan is offered with monthly payments and a 14.5 percent APR. What is the loan's effective annual rate (EAR)?    |

|  |  |
| --- | --- |
| 14. | Assume that you contribute $300 per month to a retirement plan for 25 years. Then you are able to increase the contribution to $500 per month for 20 years. Given a 9 percent interest rate, what is the value of your retirement plan after 45 years?     |

|  |  |
| --- | --- |
| 15. | If you start making $115 monthly contributions today and continue them for six years, what is their present value if the compounding rate is 12 percent APR? What is the present value of this annuity?     |

16. What is the interest rate of a 6-year, annual $10,000 annuity with a present value of $40,000?