

Name: \_\_\_\_\_

Date: \_\_\_\_\_

1. Thomas is considering two positions

- One is a full-time position as a web designer that pays a salary of pays an hourly wage of \$37.45. The job assumes four 11-hour days per week.
- The final offer is for a sales representative that pays a ~~5.7~~ <sup>5.7</sup> commission. Sales representatives typically sell an average of ~~\$110,000~~ <sup>100,000</sup> per month in textbooks.

Federal Tax Brackets

Tax Bracket	Single	Married Filing Jointly	Head of Household
10% Bracket	\$0 – \$8,700	\$0 – \$17,400	\$0 – \$12,400
15% Bracket	\$8,701 – \$35,350	\$17,401 – \$70,700	\$12,401 – \$47,350
25% Bracket	\$35,351 – \$85,650	\$70,701 – \$142,700	\$47,351 – \$122,300
28% Bracket	\$85,651 – \$178,650	\$142,701 – \$217,450	\$122,301 – \$198,050
33% Bracket	\$178,651 – \$388,350	\$217,451 – \$388,350	\$198,051 – \$388,350
35% Bracket	\$388,350+	\$388,350+	\$388,350+

- Assume he lives in a state with 6.5% income tax.
- The Web Designer position includes four paid vacation days and three paid sick days per year, health insurance that costs 3.5% of after tax income, life insurance costing \$35 per month, and a retirement plan that costs 4.5% of after-tax income.
- The sales position has no paid vacation or sick days, paid health insurance, life insurance that costs 7% of after tax income, and a retirement plan costing \$500 per month.
- Assume she takes 10 vacation days and 5 sick days per year.

Job Summary Table

Row No.	Job		
1	Income Information:	37.45 per hour	5.7% off 100,000
2	Gross annual income	85,685.60	68,400
3	Process	÷ 12	÷ 12
4	Gross monthly income	7140.47	5700

5	Process	$.065 + .28 = .345$ $.655 \times 7140.47$	$.065 + .25 = .315$ $.685 \times 5700$
6	After-tax monthly income	4677.00	3904.5
7	Vacation	$6 \cdot 11 \cdot 37.45 = 2471.7$ $\approx 205.98$	$1/2 \cdot 3904.5 = 1952.25$ $\approx 162.69$
8	Sick Leave	$2 \cdot 11 \cdot 37.45 = 823.9$ $\approx 68.66$	$5/60 \cdot 3904.5 = 996.13$ $\approx 81.34$
9	Health Insurance	$.035 \times 4677$ $\approx 163.70$	\$0
10	Life Insurance	\$35	273.32
11	Retirement	210.47	\$500
12	Monthly Take-home income	3993.19	2887.16

2. Consider the following situation:

Isaac is considering whether to use a CD or savings account for his long term savings. He plans to invest \$600 initially. The CD pays 3.75% compound interest but the money cannot be touched for 8 years. The savings account pays 4% simple interest. Calculate how much money he will have in the account each year.

CD/Year	Beginning Balance	Interest Earned	Ending Balance	Savings Account/Year	Beginning Balance	Interest Earned	Ending Balance
1	600	22.5	622.5	1	600	24	624
2	622.5	23.34	645.84	2	624	24	648
3	645.84	24.22	670.06	3	648	24	672
4	670.06	25.13	695.19	4	672	24	696
5	695.19	26.07	721.26	5	696	24	720
6	721.26	27.05	748.31	6	720	24	744
7	748.31	28.06	776.37	7	744	24	768
8	776.37	29.11	805.48	8	768	24	792

3. Which type of account should he use for an emergency fund? Why?

Savings  $\rightarrow$  get \$ out at any time

4. Write a function rule to model each investment.

$$CD \Rightarrow a_n = 600(1.0375)^x \quad S \Rightarrow a_n = 600 + 24x$$

5. For the function  $FV = 1500(1.045)^x$ , give the following information.

a. The initial investment (present value) 1500	b. The interest rate 4.5%	c. The Future Value after 12 years 2543.82
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6. Given the following table of an investment, answer the following questions.

Years	Money Earned	a. Give the regression equation for the given table	b. What is the interest rate?	c. How much will this investment be worth in 35 years?
0	400	$a_0 = 400$ $a_{n+1} = a_n \cdot 1.05$	5%	2206.41
1	420			
2	441			
3	463.05			

Look @ investment practice sheet

# AMDM: Investment Questions

Name: Key

FRI

$$\frac{9}{12} = \frac{3}{4} \cdot \frac{12}{1} \cdot \frac{30}{4}$$

1. Michael wants to buy a home that costs \$120,000. In order to get a mortgage he has to have 10% of the cost of the home saved for his deposit. How long would it take him to save for his deposit, if he is able to put aside \$500 per month gaining 3% interest per month?

$$\begin{aligned} FV &= 12,000 & N &= ? \\ PMT &= 500 & PV &= 0 \\ I\% &= 3 & & \\ P/Y &= 12 & & \\ C/Y &= 12 & & \end{aligned}$$

$N = 24.7$   
 $\approx 2 \text{ years}$

2. How much would Jessica need to save per month if she wants to have \$3,000 in 7 months, if she has her money in an account gaining 7% per month.

$$\begin{aligned} N &= 7 & PMT &= ? \\ FV &= 3000 & PV &= 0 \\ I\% &= 7\% & & \\ P/Y &= 12 & & \\ C/Y &= 12 & & \end{aligned}$$

$PMT \approx 277.78$

3. How much money would Jordan save in 9 months, if he invests \$400 in an account that gains 4.5% per month?

1	400	6	498.47
2	418	7	520.90
3	436.81	8	544.34
4	456.47	9	568.84
5	477		

How long would it take for Jordan to save \$2,500?

$$a_n = 400(1.045)^n$$

$\approx 41 \text{ years}$

4) On the day of Herbert's birth, a deposit of \$25,000 is made in a trust fund paying 8.5% interest compounded quarterly. Determine how long the money will have to be in the account for the balance to reach \$100,000.

$$65.9 \approx 5 \frac{1}{2} \text{ years}$$

5. Sandy wants to buy a car. If she can afford monthly payments of no more than \$300 and the interest rate is 3.5% financed for 5 years, how much can she afford to spend on a car?

$$\approx 1354.52$$

6. Stephanie wants to find the future value of an investment of \$4,000 that earns 5.65% compounded monthly for 25 years.

$$\approx 14,370.48$$

7. Josh wants to have \$15,000 in 15 years after investing in an account that earns 2.5% compounded quarterly. What would his monthly payments be?

$$\approx 202.03$$

8. Steven wants to invest \$1500 in an account that earns 3.24% interest, compounded monthly. How many years will it take for the account to have a value of \$8000.

$$\approx 620 \quad \approx 52 \text{ years}$$

9. You think of a scenario of your own. Maybe something you are saving for? Make up the numbers or think about the project from earlier this week? What interest rates make sense etc.