

1. (12 points) Identify the premises, conclusion, and the type of Fallacies

(a) I ate oysters for dinner and later that night I had a nightmare. Oyster caused my nightmare

P: I ate oyster and had a nightmare

con: oyster caused nightmare

Fallacy: false cause

(b) My uncle never drank alcohol and lived to be 93 years old. That's how I know that avoiding alcohol leads to greater longevity.

P: ~~My~~ Uncle never drunk & live 93

C: Avoiding alcohol increases the ~~life~~ ~~longevity~~ longevity.

F: false cause.

(c) Apple's iPhones outsell all other smart phones, so they must be the best smart phones on the market.

P = sell most.

C = They must be best smart phone.

F: Appeal of popularity.

2. (20 points) For the two statements p, q find the following logical argument truth table for Negation: not p ($\sim p$), Conjunction: p and q ($p \wedge q$), Disjunction: p or q ($p \vee q$), Conditional:

if p then q ($p \Rightarrow q$). Inverse: if not p then not q ($\sim p \Rightarrow \sim q$), Converse: if q then p ($q \Rightarrow p$), Contrapositive: if not q then not p ($\sim q \Rightarrow \sim p$).

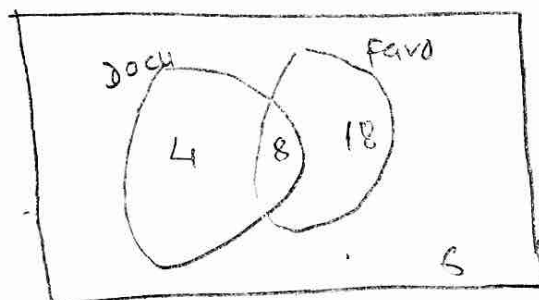
p	q	$\sim p$	$\sim q$	$p \wedge q$	$p \vee q$	$p \Rightarrow q$	$\sim p \Rightarrow \sim q$	$q \Rightarrow p$	$\sim q \Rightarrow \sim p$
T	T	F	F	T	T	T	T	T	T
T	F	F	T	F	T	F	T	T	F
F	T	T	F	F	T	T	F	F	T
F	F	T	T	F	F	T	T	T	T

3. (15 points) A movie critics reviewed 36 films: 12 were documentaries and 24 were feature films. She gave favorable reviews to 18 of the 24 feature films. She gave favorable reviews to 8 of the documentaries and unfavorable reviews to 6 of the feature films.

(a) Make a two-way table summarizing the reviews.

	Favorable	unfavorable
Documentary	8	4
Feature	18	6

(b) Make a Venn diagram from the table in part (a).



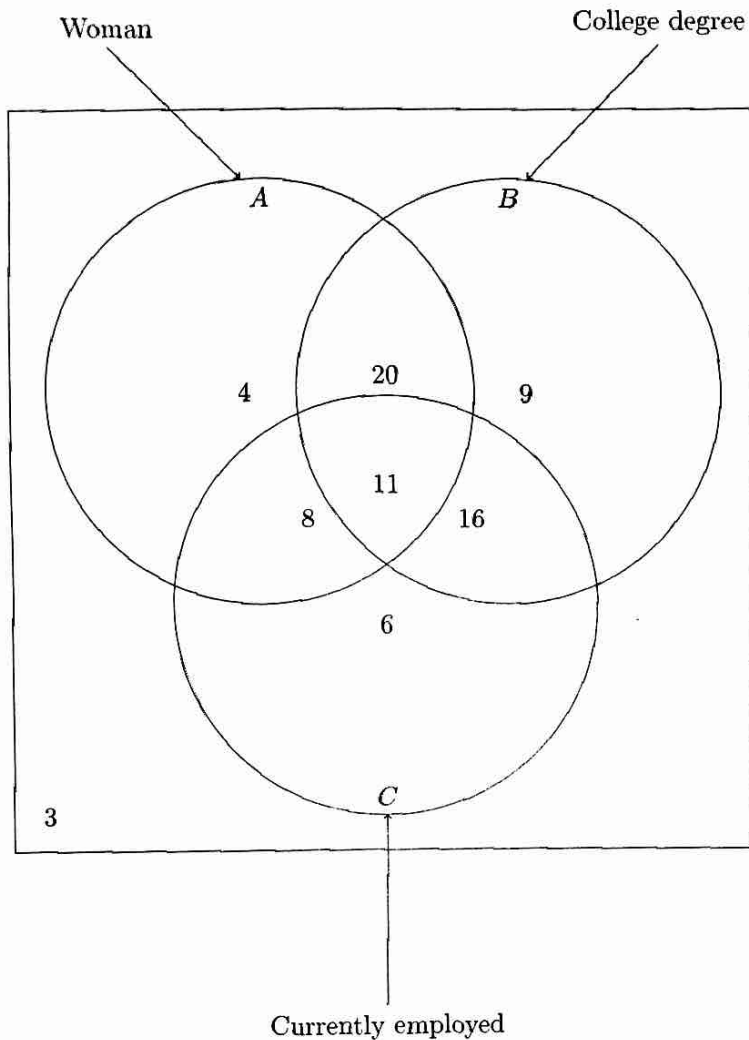
(c) How many documentaries received unfavorable reviews?

$$= 4$$

(d) How many feature films received favorable reviews?

$$= 18$$

4. (10 points) Following is the Venn-diagram of the people at conference. Use the Venn Diagram to answer the following questions



- (a) How many people at the conference are employed men with a college degree?

$$= 16$$

- (b) How many people at the conference are employed men?

$$22$$

- (c) How many people at the conference are unemployed woman?

$$24$$

- (d) How many women are at the conference?

$$43$$

5. (10 points) Compute the compounded interest for the following problems.

(a) (5 points) \$5000 is invested for 10 years with an APR of 2% and quarterly compounding.

$$P = 5000$$

$$T = 10$$

$$n = 4$$

$$R = 2 = 0.02$$

$$\begin{aligned} A &= P \left(1 + \frac{R}{n} \right)^{nT} = 5000 \left(1 + \frac{0.02}{4} \right)^{40} \\ &= 5000 (1 + 0.005)^{40} \\ &= 5000 (1.005)^{40} \\ &= 5000 \times 1.221 \\ &= 6103.77 \end{aligned}$$

(b) (5 points) \$4000 is invested for 20 years with an APR of 2% and monthly compounding.

$$P = 4000$$

$$T = 20$$

$$R = 2\% = 0.02$$

$$n = 12$$

$$= \frac{4000}{5965.31}$$

$$\begin{aligned} A &= P \left(1 + \frac{R}{n} \right)^{nT} \\ &= 4000 \left(1 + \frac{0.02}{12} \right)^{240} \\ &= 4000 \left(1 + \frac{0.02}{12} \right)^{240} \end{aligned}$$

6. (10 points) For the following income and expenses compute the Net Cash flow:

Income:

Part-time Job = \$650 per month
 College fund from grandparents: \$400 per month
 Scholarship: \$6000 per year.

650
 400
 500

Income

1550

Expenses:

Rent: \$500 per month.

Groceries: \$60 per week.

Tuition and Fees: \$3600 twice a year.

Incidentals: \$120 per week

500
 240
 600
 480
1820

$$\text{Cash flow} = 1550 - 1820 \\ = -270$$

7. (15 points) You have a choice of two health insurance plans:

Plan A:

Monthly premium: \$300

Annual deductible: \$5000

Office visit co-payment: \$25.

Emergency room co-payment: \$500

Surgical operations co-payments: \$250 ~~per year~~.

Plan B:

A annual premium: \$700

Annual deductible: \$1500

Office visit co-payment: \$25

Emergency room co-payment: \$200

Surgical operations co-payments: no co-payment.

Suppose that during a one-year period your family received the following medical bills.

Service and Costs are as following:

Jan. 23: Emergency room \$800

Feb. 14: Office Visit \$100

Apr. 13: Surgery \$1400

June 14: Surgery \$7500

July 1: Office visit \$100

September 23 Emergency room \$1200

- (a) (5 points) Determine your annual health care expenses if you have plan A.

$$\text{premium} = 12 \times 300 = 3600$$

$$\text{deductible} = 5000$$

Jan 23	ER	500
Feb 14	cop	25
Apr 13	sur	250
Jun 14	sur	250
July 1	cop	25
Sep 23	ER	500
		<u>Total = 10150</u>

$$\begin{array}{r} 300 \\ 75 \\ 1150 \\ 7250 \\ 75 \\ \hline 700 \\ 9550 \\ - 5000 \\ \hline \end{array}$$

- (b) (5 points) Determine your annual health care expenses if you have plan B.

$$\begin{array}{l} \text{premium} = 700 \\ \text{dedu} = 1500 \\ \text{CO-PAY} = 25 \times 2 = 50 \\ \text{ER} = 2 \times 200 = 400 \\ \hline 2650 \end{array}$$

- (c) (5 points) Determine your health care expenses if you have no health insurance. Does have no health insurance create any other risks for you? Explain.

$$\begin{aligned} \text{if NA} &= 800 + 100 + 1400 + 7500 + 100 + 1200 \\ &= 11,100 \end{aligned}$$

if No Insurance, may have to pay if there

8. (8 points) Determine the validity of the following statement.

Premise: If taxes are cut the U.S. Government will have less revenue.

Premises: If there is less revenue, then the federal deficit will be larger.

Conclusion: Tax cuts will lead to a larger federal deficit.

Valid \Rightarrow

P = tax cut

q = less revenue

r = federal deficit

If P then q

If q then r

$\therefore P \Rightarrow r$

Bonus:

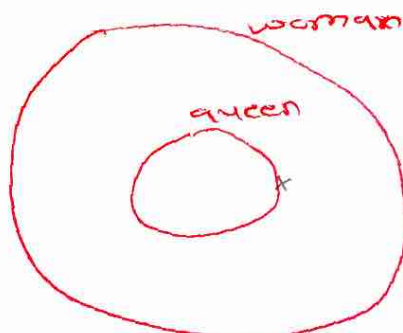
9. (5 points) Determine the truth of the following premises, and check whether it is sound or not,

Also present in the Venn-diagram.

Premise: All queens are woman.

Premises: Meryl Streep is a woman.

Conclusion: Meryl Streep is a queen.



true but NOT valid
Not sound.