

Partial Answer Key Practice Test 1
MTH 122 Discrete Mathematics Practice Questions from Old Tests

2. e

4. $1001 \wedge 1010 = 1000$

$1001 \oplus 1010 = 0011$

5. Yes

8. b)

Negation: Some students do not have to take a math course.

9. a)

10. Which rule of inference is used in each of the following (See attached sheet).

- a) simplification
- b) hyp. syllogism.
- c) disj. syllogism
- d) universal modus tollens

11. c)

12.

| Statement | Reason |
|----------------------|--------------------------|
| 1. $G \rightarrow I$ | 1. Hyp. |
| 2. $I \rightarrow L$ | 2. Hyp. |
| 3. $\neg L$ | 3. Hyp. |
| 4. $\neg I$ | 4. Modus Tollens/ w 2, 3 |
| 5. $\neg G$ | 5. Modus Tollens w/ 1, 4 |

13. b)

15. Write down the cardinality of each of the following sets:

a) 3 b) 4

16. Assume the universal set $U = \{1,2,3,4,5,6,7,8,9,10\}$. Let $B = \{2,4,6,8\}$ and $C = \{1, 2, 3, 4, 5\}$. Find each of the following sets:

a) $\{2, 4\}$ b) $\{1, 2, 3, 4, 5, 6, 8\}$ c) $\{5, 7, 8, 9, 10\}$ d) $\{6, 8\}$

20.

- a) False
- b) True
- c) True
- d) $\{1, 2, 3, 4\}$
- e) $\{a, b, c, d, e\}$
- f) e

21. Let f be the function that assigns to a bit string the number of bits in the string.

- a) Set of all bit strings
- b) Natural numbers (nonnegative integers)
- c) No
- d) No

22. $(2x-1)^2$

23. b)

24. 18

25. b)

26. Compute the following summations:

- a) 1533
- b) 24