



Mathematics Department
Math 135
First Exam /2004

Student name:

Student no.:

Q#1(80points) Circle the correct answer

1. The cardinal number of $\{2, 6\{3,4\}, 3, \{6,7\}, 7\}$
 - a. $n(A) = 4$
 - b. $n(A) = 5$
 - c. $n(A) = 6$
 - d. $n(A) = 8$

2. Which of the following is always true
 - a. $A \cup B = A \cap B$
 - b. $A \cup B \subseteq A \cap B$
 - c. $\phi \subseteq A \cap B$
 - d. $A \cap \Phi = A$

3. If the set $A = \{ x : 1 \leq x \leq 10 \text{ and } x \text{ is even number} \}$ which of the following is not true?
 - a. A is finite set
 - b. $n(A) = 6$
 - c. A is well a well- defined set
 - d. The number of proper subsets of A is equal 31

4. The solution set for the linear equation $4m + 2(m + 8) - 3m = 2(5m + 1)$
 - a. Has no solution
 - b. 2
 - c. -2
 - d. Has infinite number of solutions

5. Which of the following statement is not true?
 - a. The number of subsets of an empty set equal 1
 - b. $(A \cap B \cap C) \subset B$
 - c. The complement of an empty set is empty set.
 - d. $\{\Phi\} \subseteq \{\Phi, 2, 3, 4\}$

6. Which of the following set are empty

- a. $\{\Phi\}$
- b. $\{x : x \text{ is an integer and } x^2 < 0 \}$
- c. $\{x : x \text{ is an integer and } x^3 < 0 \}$
- d. $\{x : x \geq 0 \text{ } x \text{ is a real number}\}$

7. Which of the following is not equivalent to the equation $4x - 3 = 3(x - 2)$

- a. $-x = 3$
- b. $\frac{3}{x} = -1$
- c. $x - 2 = 2x + 1$
- d. $x + 2x = 2(x - \frac{1}{2})$

8. In math 135 class, there are 44 students, if the number of female students is 10 less than twice the number of male students. The ratio of female students to male students

- a. 20:24
- b. 24:20
- c. 18:26
- d. 26:18

9. The solution set of the equation $x(x + 4) = 4x^2$

- a. $\{\frac{3}{4}\}$
- b. $\{0, \frac{4}{3}\}$
- c. $\{\frac{3}{4}, 0\}$
- d. $\{0\}$

10. The solution of the inequality $[x + 2(-x + 2x + 1)] \geq 2(x + 2)$ is

- a. $(-\infty, 2)$
- b. $[2, \infty)$
- c. $(0, \infty]$
- d. $(-\infty, 2]$

11. If the set $A = \{a, b, \Phi\}$ then the proper subsets of A are

- a. $\{a\}, \{b\}$
- b. $\Phi, \{a\}, \{b\}, \{a, b\}$
- c. $\Phi\{a\}, \{b\}, \{a, b\}$
- d. $\Phi, \{a\}, \{b\}, \{\Phi\}, \{a, \Phi\}, \{b, \Phi\}, \{a, b\}$

12. If the set $A = \{2, 4, \{6, 8\}, 10\}$ which of the following is false?
- $\{2, 4\} \subset A$
 - $\{2, 4, 6, 8\} \subset A$
 - $\{6, 8\} \in A$
 - $\{10\} \subset A$
13. If $A' = \{1, 2, 3\}$ and $B' = \{2, 4, 6\}$ then $(A \cap B)'$ is
- $\{1, 2, 3, 4, 6\}$
 - $\{3, 2, 1\}$
 - $\{2\}$
 - Φ
14. Let $A = \{a, b\}$, $B = \{1, 2, 3\}$ the Cartesian product A and B
- $\{(1, a), (1, b), (2, a), (2, b), (3, a), (3, b)\}$
 - $\{(a, 1), (b, 1), (a, 2), (b, 2), (a, 3), (b, 3)\}$
 - $\{(a, 1), (b, 3)\}$
 - $\{(a, 1), (a, 2), (a, 3)\}$
15. If $n(U) = 40$, $n(A') = 20$, $n(B) = 10$, $n(A \cap B) = 5$ which of the following is false
- $n(A) = 20$
 - $n(A \cup B) = 25$
 - $n(A - B) = 15$
 - $n(B - A) = 10$
16. Which of the proportion is true
- $\frac{3}{6} = \frac{60}{30}$
 - $\frac{7}{12} = \frac{14}{19}$
 - $\frac{9x}{3} = \frac{6x}{2}$
 - $\frac{7}{2} = \frac{8}{3}$
17. If Y is inversely variation with x^3 and $y = 27$ when $x = 1$ the value of x when $y = 1$ is
- 9
 - 3
 - $(9)^{\frac{1}{3}}$
 - $3^{\frac{1}{3}}$

18. If $2x < x + 2 \leq 2x + 4$ the solution set of x

- a. $-2 \leq x < 2$
- b. $2 < x < -2$
- c. $-2 < x \leq 2$
- d. $0 < x \leq 2$

19. A man is 7 years older than his wife is. Ten years ago he was twice her age. The old of a man and his wife respectively are

- a. 27, 20
- b. 34, 27
- c. 17, 10
- d. 24, 17

20. The ratio of 300 day to 1 year

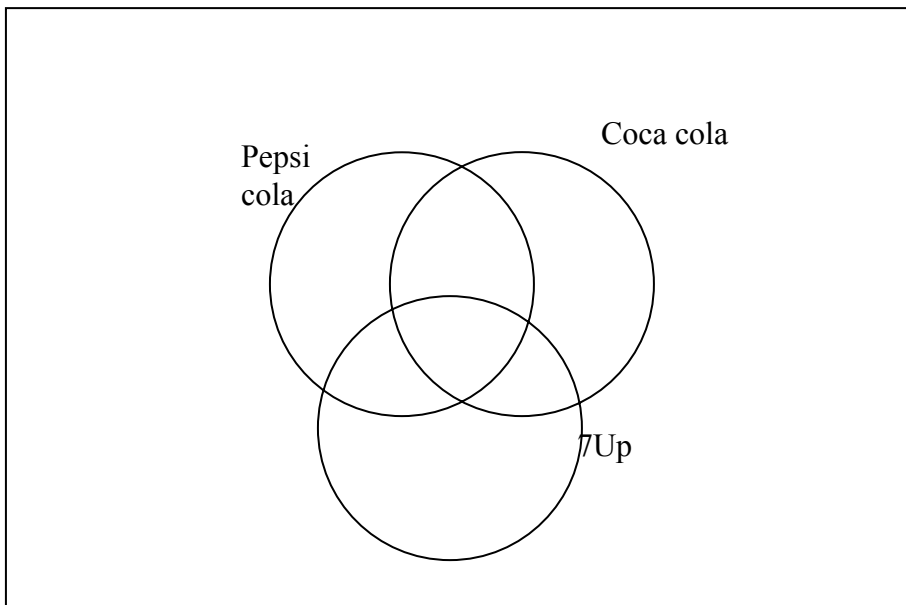
- a. 1:1
- b. 365:1
- c. 365:365
- d. 300:365

Q#2 (20points)

A survey of a group of people indicated that:

50 people liked Pepsi cola, 45 people like 7up, 40 people like Coca cola, 30 people like Coca cola but not like Pepsi cola, 10 people did not like any of three drinks, 10 people like 7up and Coca cola, 40 people did not like Coca cola or 7up, and there is no people like any of three drinks.

1) Draw Venn diagram and determine the cardinal number for each area.



2) How many people like 7up or Coca cola but not Pepsi cola?

3) How many people survey?

4) How many people like 7up or Pepsi cola?

5) How many people like Coca cola but not like 7up or Pepsi cola?