

Chapter 2 Exam v2

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use sets to solve the problem.

1) A survey of a group of 117 tourists was taken in St. Louis. The survey showed the following: 1) _____

66 of the tourists plan to visit Gateway Arch;

49 plan to visit the zoo;

11 plan to visit the Art Museum and the zoo, but not the Gateway Arch;

14 plan to visit the Art Museum and the Gateway Arch, but not the zoo;

19 plan to visit the Gateway Arch and the zoo, but not the Art Museum;

7 plan to visit the Art Museum, the zoo and the Gateway Arch;

16 plan to visit none of the three places.

How many plan to visit the Art Museum only?

A) 37

B) 12

C) 49

D) 101

Write the numeral in base ten.

2) 25_{eight} 2) _____

A) 133

B) 165

C) 33

D) 21

Convert the base-ten number to a number in the indicated base.

3) 46_{ten} to base twelve 3) _____

A) $2E_{\text{twelve}}$

B) $4L_{\text{twelve}}$

C) $4E_{\text{twelve}}$

D) $3T_{\text{twelve}}$

Solve the problem.

4) The sum of the digits of a 3-digit number is 18. The units digit is one less than the tens digit and the tens digit is one less than the hundreds. What is the number? 4) _____

A) 765

B) 876

C) 865

D) None of these

Use sets to solve the problem.

5) A survey of 240 families showed that 5) _____

91 had a dog;

70 had a cat;

31 had a dog and a cat;

91 had neither a cat nor a dog nor a parakeet;

7 had a cat and dog and a parakeet.

How many had a parakeet only?

A) 19

B) 24

C) 34

D) 29

Write the set as indicated.

6) List the set of states that border California.

- A) {Oregon, Nevada, Utah}
C) {Nevada, Utah}

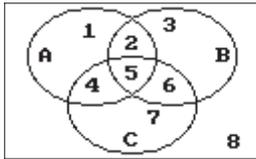
- B) {Washington, Utah, Arizona}
D) {Oregon, Nevada, Arizona}

6) _____

Use sets to solve the problem.

7) The circles in the Venn diagram represent customers who prefer products A, B, and C, respectively. Which of the regions numbered one through eight describe customers who prefer Products A or C?

7) _____



A) 2,5,6

B) 1,2,4,5,6,7

C) 2,4,5,6

D) 4,5

For the following, write an equivalent numeral in the Hindu-Arabic system.

8)

A) 363

B) 3603

C) 3063

D) 3630

8) _____

Determine whether the following is true or false.

9) $A \cap \bar{B} = A - B$

A) True

B) False

9) _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

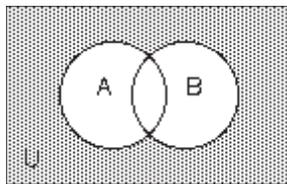
10) Given that the counting frame $\frac{\cdot}{4} \mid \frac{\cdot}{2} \mid \frac{\cdot}{1}$ represents the number 7, where the value of each dot is represented by the number in the box below the dot, what does the counting frame $\frac{\cdot}{4} \mid \frac{\cdot}{2} \mid \frac{\cdot}{1}$ represent?

10) _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Use set notation to identify the shaded region.

11)



A) $A - B$

B) $A \cup B$

C) $\bar{A} \cap \bar{B}$

D) $\overline{A \cap B}$

11) _____

Rewrite the statement using mathematical symbols.

12) The set consisting of the elements k and y is a proper subset of {k, b, e, y, u}.

A) $\{k, y\} \sim \{k, b, e, y, u\}$

B) $\{k, y\} \subseteq \{k, b, e, y, u\}$

C) $\{k, y\} \in \{k, b, e, y, u\}$

D) $\{k, y\} \subset \{k, b, e, y, u\}$

12) _____

13) The set A is the set containing only the element 6.

A) $A = \{ \}$

B) $A \subset \{6\}$

C) $A = \{6\}$

D) $A \in \{7, 6\}$

13) _____

For the following, write an equivalent numeral in the Hindu–Arabic system.

14)

A) 110,011

B) 1111

C) 11,011

D) 101,011

14) _____

Write the place value of the underlined numeral.

15) 210,152

A) Hundreds

B) Hundred thousands

C) Thousands

D) Ten thousands

15) _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Provide an appropriate response.

16) A is the set of all even natural numbers, and B is the set of all odd natural numbers.

16) _____

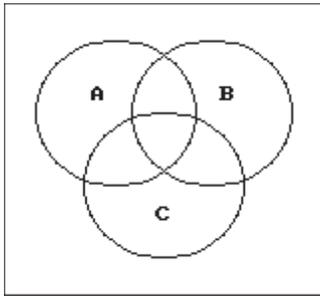
Describe a universal set for A and B. Also, with respect to this universal set, give a relationship between A and B.

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

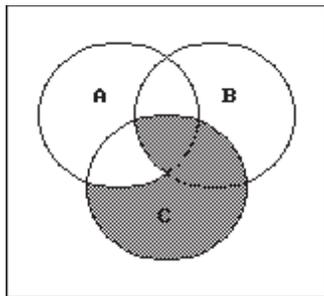
Shade the portion of the diagram that represents the given set.

17) $(\overline{A \cup B}) \cap C$

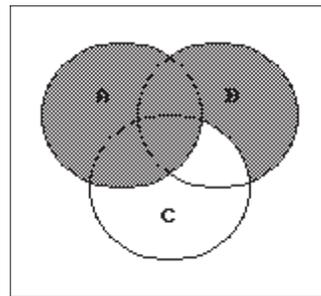
17) _____



A)



B)



For the given Hindu–Arabic numeral, write an equivalent numeral in the indicated system.

18) 210; Babylonian

A)

B)

C)

D)

18) _____

Rewrite the statement using mathematical symbols.

19) The set A with elements Indiana and Minnesota is not equal to the set B with elements Kansas and Virginia.

19) _____

A) $B = \{\text{Indiana, Minnesota}\}$, $A = \{\text{Kansas, Virginia}\}$, $B \neq A$

B) $A = \{\text{Indiana, Minnesota}\}$, $B = \{\text{Kansas, Virginia}\}$, $A \not\subset B$

C) $A = \{\text{Indiana, Arizona}\}$, $B = \{\text{Kansas, Virginia}\}$, $A \neq B$

D) $A = \{\text{Indiana, Minnesota}\}$, $B = \{\text{Kansas, Virginia}\}$, $A \neq B$

Use sets to solve the problem.

20) Results of a survey of fifty students indicate that 30 like red jelly beans, 29 like green jelly beans, and 17 like both red and green jelly beans. How many of the students surveyed like neither red nor green jelly beans?

20) _____

A) 17

B) 12

C) 8

D) 13