T101

9) If U = { 40, 41, 42, 43, 44, 45, 46 }, A = { 41, 43, 46 } and B = { 41, 45 }, find each of the following:

a) A B b) A ∩ B c) A x B d) n(A)

10) List the elements of the set A = $\{x | x$ N and $5 \le x < 10\}$

11) List all subsets of C = $\{1, 2, 3, 4\}$

12) Given U = $\{1, 2, 3, ..., 30\}$ A = $\{1, 3, 5, 7, 11, 13, 17, 19\}$

B = $\{x | x$ N & $15 < x < 25\}$ C = $\{x | x$ is an odd number & $19 \le x < 30\}$.

a) A ∩ B

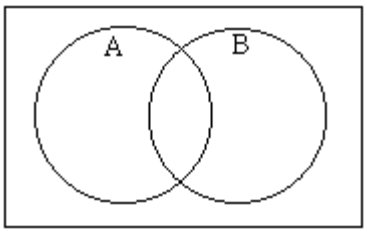
b) A B

e) B - C

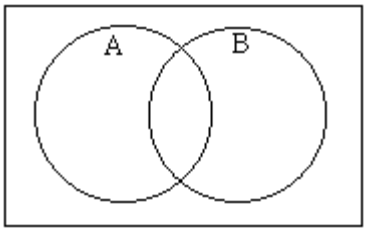
f) Show A 45 41, 45 }, find each

Shade the Venn diagram to represent the set.

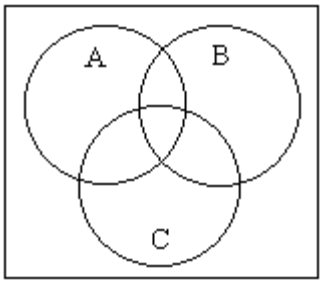
20) $\overline{A} \cap \overline{B}$



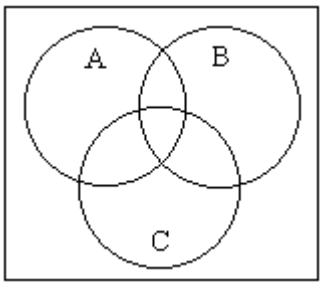
21) (A B) $\cap \overline{(A \cap B)}$



22) $\overline{C} \cap$ (A B)



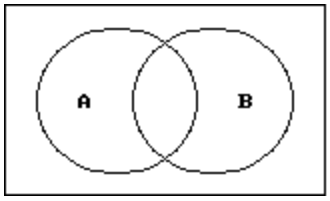
23) [(A $\cap$ B) C] - A

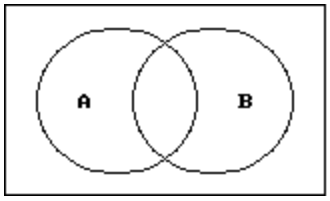


24) (A B)

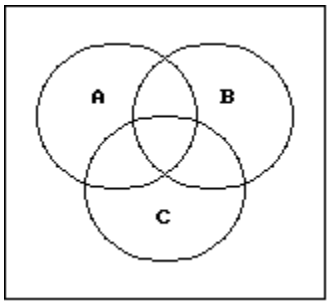
Use a Venn diagram to decide if the statement is true or false.

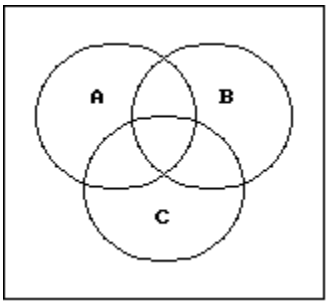
25) $A \cap \overline{B} = \overline{B - A}$





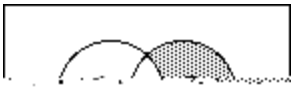
26) B (A ∩ C) = (A B) ∩ (B C)





Write a description of the shaded region using the symbols A, B, C, , , –, and $\overline{\ }$ as needed.

27)



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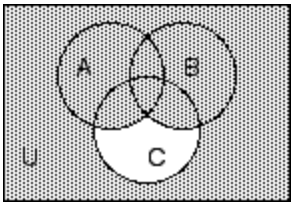
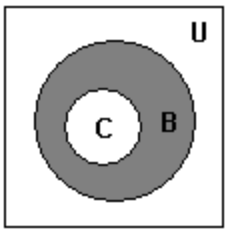


29)



Find the cardinal number of the indicated set.

30) Given:

n(A) = 70A)

34) If A = $\{1, 2, 3\}$ B = $\{m, n, x\}$

a) How many 1-1 correspondences are possible?

b) find A × B

c) $n(A \times B) = ?$

d) Is A × A a function from A to A?

e) How many proper subsets does A have?

35) A = {11, 8, 9}

B = {13, 4}

Find A × B.

36) $f(x) = 3x - 2$

$f(0) = ?$

$f(1) = ?$

37) Give the rule

x	$f(x)$
0	2
1	3
2	6
3	11

38) Given the function $f(x) = 3x - 1$ and the domain D = $\{0, 3, 5\}$, find the associated range.

39) Given $f(x) = 2x - 1$ and $g(x) = x - 7$ find each of the following:

a. $(f \quad g)(-4)$ b. $g(f$D(3)Tj/TT81190TfmTf.3150TD(f)Tj/TT21Tf.250TD[(D(3)Tj/TT81190TfmTf.3

42) Draw Venn Diagrams:

A = x

54) Simplify: $-6-9(4)+2$

55) In a chemical experiment the temperature is $-48\,^{\circ}C$ at 3:00 P.M. What is temperature at 3:21 P.M. if the temperature increases 3° C per minute?

56) Classify each of the following as true or false.
a) If a number is divisible by 8 and 2, then it is divisible by 16.
b) If $x \mid (a+b)$, then $x \mid a$ or $x \mid b$.
c) $0 \mid 4$.

57) Which of the following numbers are divisible by 3? 2448, 7367, 6353, 5175

58) Which of the following numbers are divisible by 8? 1014, 711, 4279, 135

59) Which of the following numbers are divisible by 6? 4942, 9090, 7436, 3744

60) Find all the factors of: a) 33 b) 72

61) Write the prime factorization of 300.

62) What is the greatest prime number to consider to test whether or not 531 is prime?

63) Farmer Welsh has 725 pear trees. He wants to plant them in rows that have the same number of trees in each row. Since his property is approximately square, what

67) A teacher instructs her class as follows:
Take any number and subtract 12 from it. Now multiply that difference by 5. Next add 20, and divide the sum by 5. If you now add 16 to the quotient and tell me the number. I will tell you the number you started with. Show how it is possible for the teacher to find the starting number.

68) Last week Mrs. Baker's cats got into Mrs. Murphy's chicken coop with her chickens. During the commotion, I counted 26 heads and 60 feet. None of the animals was harmed. How many of Mrs. Baker's cats were in the coop with how many of Mrs. Murphy's chickens?

69) Classify as True or False:
a) Every set is a subset of itself.
b) If A = { 2, 3, 4, 5, 6, 7} , then n(A) = 5.

70) Find the 8th term of this sequence: 32, 16, 8, 4, ...

71) Tom's income has been increasing each year by the same amount. The first year his income was $25,900, and the fifteenth year his income was $60,900. In what year will his income be $85,900?

72) Convert 29 to base three.

73) Convert 423_{five} to base ten.

74) Tell the place value for the underlined numbers: a) $9\underline{4}598$ b) $\underline{2}48_{six}$

75) For each of the following identify the rational number property which is illustrated:
a) 9 + (6 + 4) = 9 + (4 + 6)
b) -3(x + 8) = -3x + - 24
c) 4 + 0 = 4

76) Draw a diagram of the collection of base pieces representing the following number. 143_{five}.

77) Add or multiply in the bases indicated:

a) $50303_{six} + 244_{six}$ b) $212_{five} \times 13_{five}$

78) Use the indicated model to perform the following: Show your work.

a) 7 + 3 (number line and charged field) b) 3 x (- 5) (charged field)
c) -7 - 4 (charged field)

79) Write the first 15 natural numbers in base five.

80) Find the missing numbers in each of the following.

a) □ 3 □ 8 b)

93) Estimate

1) a) $a_{14} = 42$ b) 115

2) 20, 50, 80, 110, 140 and 20, 40, 80, 160, 320

3) 131, 177, 233

4) 6, 13, 32, 69, 130

5) 36, n^2

6) 78, 2850

7) {a,e,r,t}

8) n(A) = 5

9) a) { 41, 43, 45, 46} b) { 41 }
c) { (41, 41), (41, 45), (43, 41), (43, 45), (46, 41), (46, 45) } d) 3

10) A = {5, 6, 7, 8, 9}

11) φ, {1}, {2}, {3}, {4}, {1,2}, {1, 3}, {1, 4}, {2, 3}, {2, 4}, {3, 4}, {1, 2, 3}, {1, 2, 4}, {2, 3, 4}, {1, 3, 4}, {1, 2, 3, 4}

12) a) {17, 19}
b) {1, 3, 5, 7, 11, 13, 16, 17, 18, 19, 20, 21, 22, 23, 24}
c) No
d)

Show $\overline{A \quad B}$

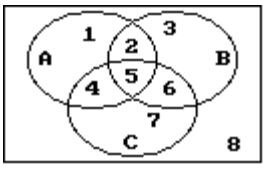
$\overline{A} \cap \overline{B}$

e) {16, 17, 18, 20, 22, 24}
g) {16, 18, 20, 22, 24}
h) 7

13) a) A b) c) A d) B e) U f) g) B h) i) U j) B

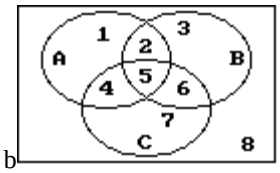
14) a) b) c) d) e) f) g) h)

15)



Sections 6

b



Section 4,6,7

16) No

17) False

18) True

19) Yes

20)

Answer Key
Testname: PRACTICE FINAL REVISED

66) 7n + 8 dollars
67) To tell the student's number the teacher merely subtracts 8 from the student's answer.
68) 4 cats and 22 chickens
69) a) True b) False
70) $\frac{1}{4}$
71) 25 the year
72) 1002_{three}
73) 113
74) a) thousand b) 6^2 or 36
75) a) Commutative Property of +
b) Distributive property of X over +
c) Identity Property of Addition
76) one 5 x 5, four 5 x 1's, and three 1 x 1's
77) a) 50551_{six} b) 3311_{five}
78) a) 10 b) - 15 c) - 11
79) $(1,2,3,4,10,11,12,13,14,20,21,22,23,24,30)_{five}$
80) 1,3,5,1 b) 7,2,8,7
81) 8642
82) 20 times
83) a) -3 b. 7 c. -2x + 5y
84) a) no 9 does not divide 30(sum)
b) yes divisible by 3 and 5
85) a) 4 b) 180
86) GCD = 4 LCM = 146,200
87) 2, 3 ,5, 7, 11, 13, 17, 19
88) 60
89) a) 26 b) 5
90) - 21
91) If $650 12 and 23, if $325 24 and 46, if $130 60 and 115 etc.
92) a) 766_{eight}, 770_{eight}
b) XVIII XX
93) a) 28,000 b) 800
94) TRUE
95) TRUE
96) TRUE
97) FALSE
98) TRUE
99) FALSe
100) False