

Problem

Ans

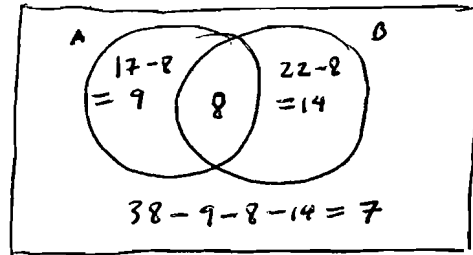
Reason

1

(a) $n(A') = 21$

(b) $n(A \cup B) = 31$

(c) $n((A \cup B)') = 7$



$n(A') = 14 + 7 = 21$

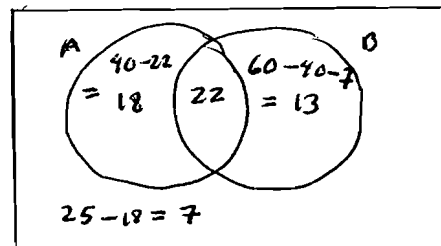
$n(A \cup B) = 9 + 8 + 14 = 31$

2

(a) $n(B) = 35$

(b) $n(A \cup B) = 53$

(c) $n((A \cap B)') = 38$



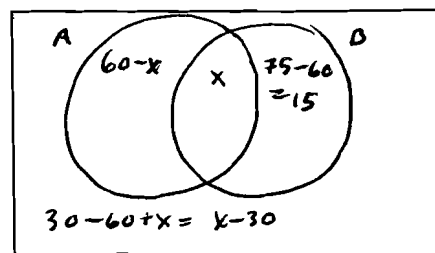
$n(B) = 22 + 13 = 35$

$n(A \cup B) = 18 + 22 + 13 = 40 + 13 = 53$

$n((A \cap B)') = 18 + 13 + 7 = 38$

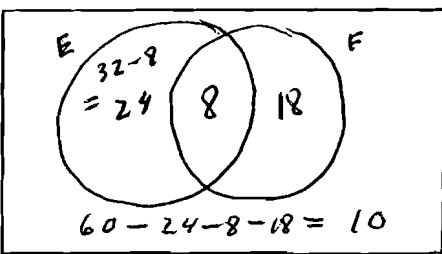
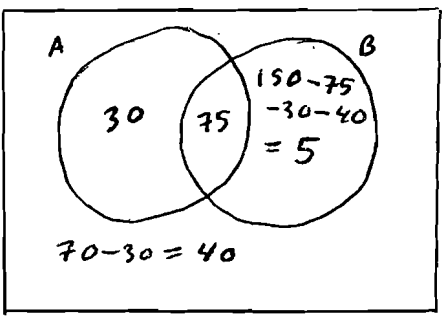
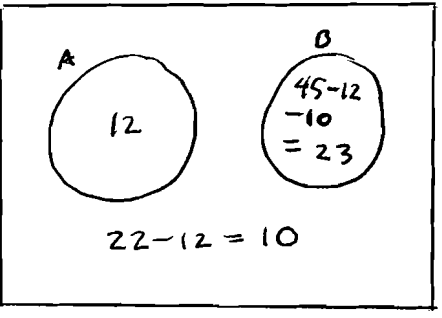
3

$n(A \cap B) = 55$



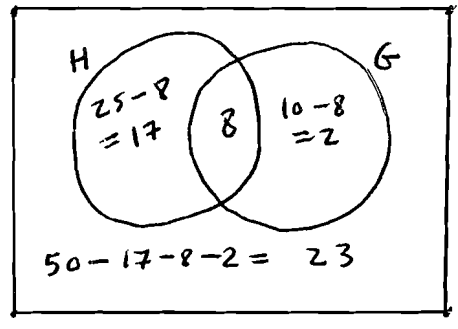
$60 - x + x + 15 + x - 30 = 100$

$x = 55$

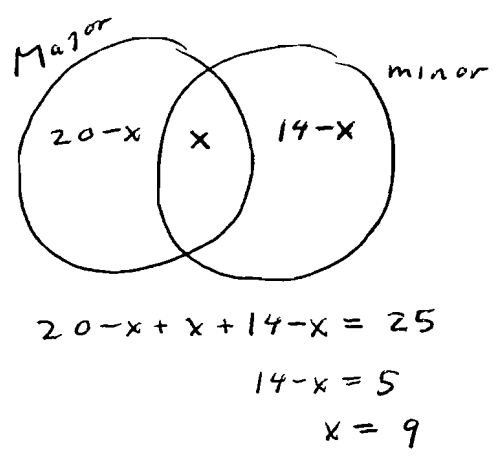
| Problem | Ans | Reason |
|---------|---------------------|--|
| 4 | $n(F) = 26$ |  <p>$n(F) = 8 + 18 = 26$</p> |
| 5 | $n(A \cup B) = 110$ |  <p>$n(A \cup B) = 30 + 75 + 5 = 110$</p> |
| 6 | $n(A' \cap B) = 23$ |  <p>A, B disjoint so $A' \cap B = B$</p> |

| Problem | Ans | Reason |
|---------|-----|--------|
|---------|-----|--------|

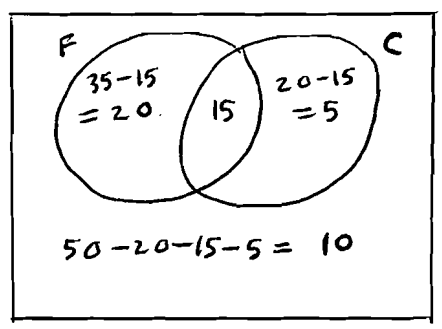
7 23



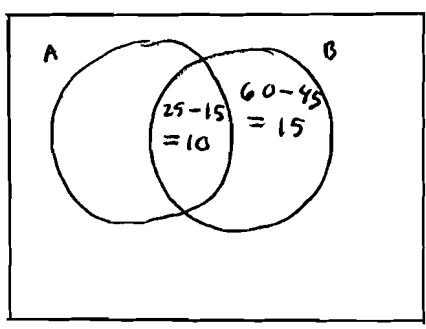
8 9



9 10



10 $n(A \cap B) = 10$
 $n(A' \cap B) = 15$



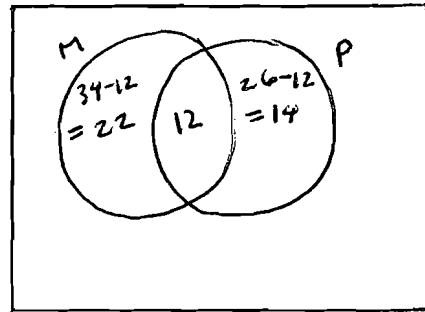
Problem

Ans

Reason

11

36

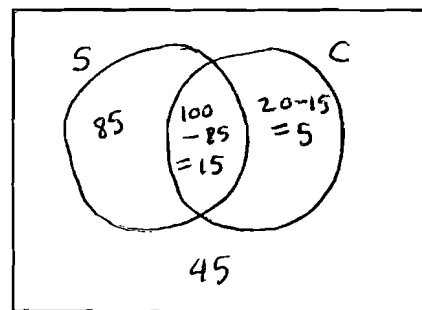


$$22 + 14 = 36$$

12

(a) 5

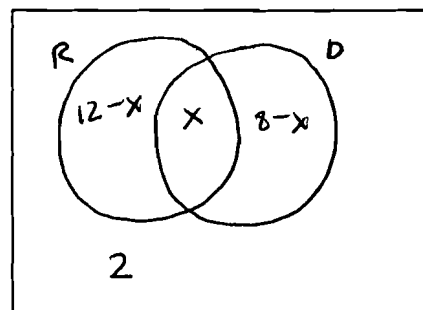
(b) 105



$$85 + 15 + 5 = 105$$

13

7



$$15 = 2 + 12 - x + x + 8 - x$$

$$x = 7$$

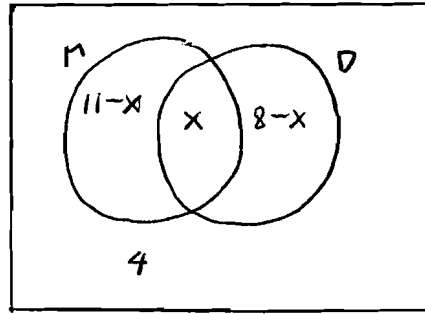
Problem

Ans

Reason

14

3

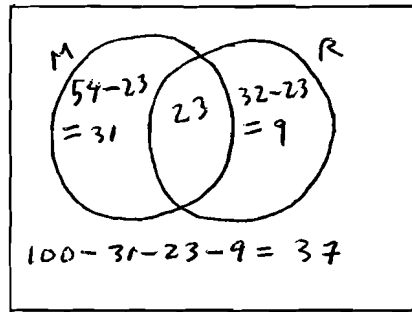


$$4 + 11 - x + x + 8 - x = 20$$

$$x = 3$$

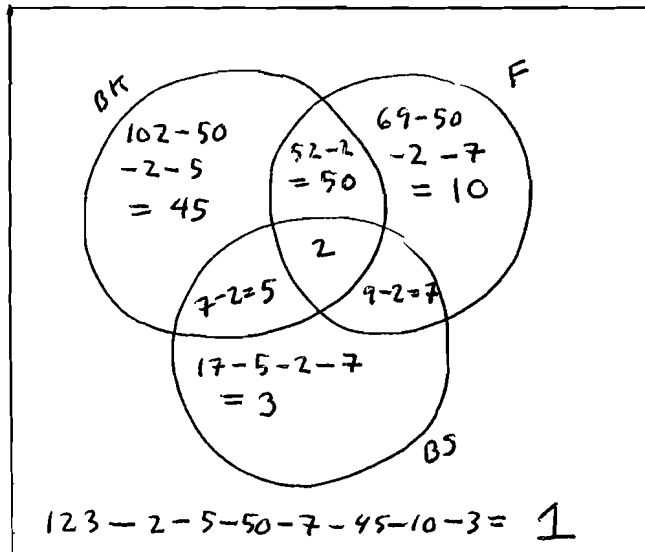
15

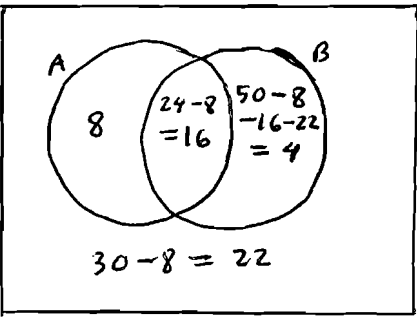
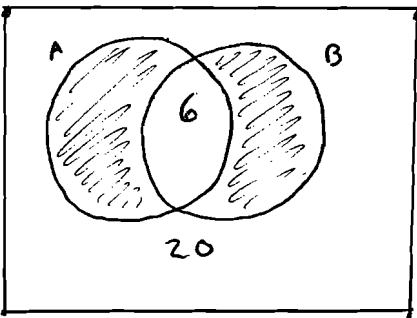
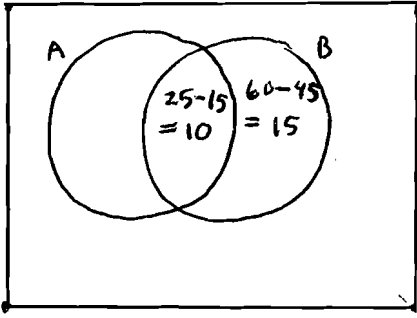
37



16

1



| Problem | Ans | Reason |
|---------|-----|---|
| 17 | 4 |  <p> $24 - 8 = 16$ $50 - 8 - 16 - 22 = 4$ $30 - 8 = 22$ </p> |
| 18 | 24 |  <p> $50 - 20 - 6 = 24$ </p> |
| 19 | 10 |  <p> $25 - 15 = 10$ $60 - 45 = 15$ </p> |

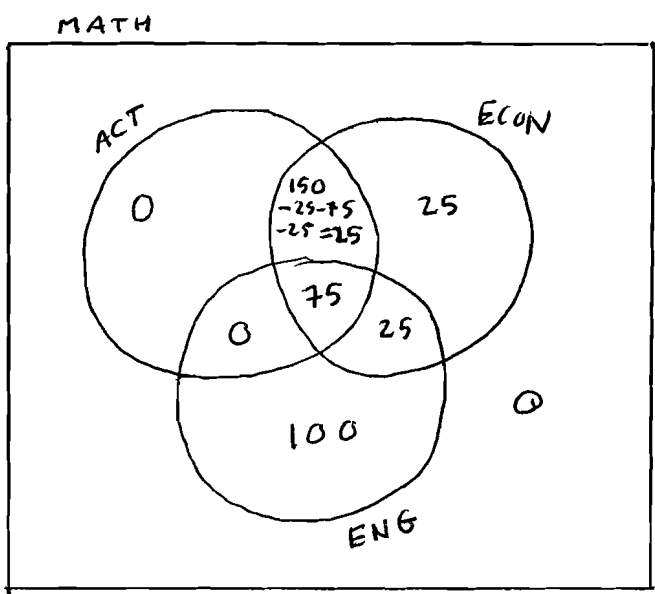
Problem

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Reason

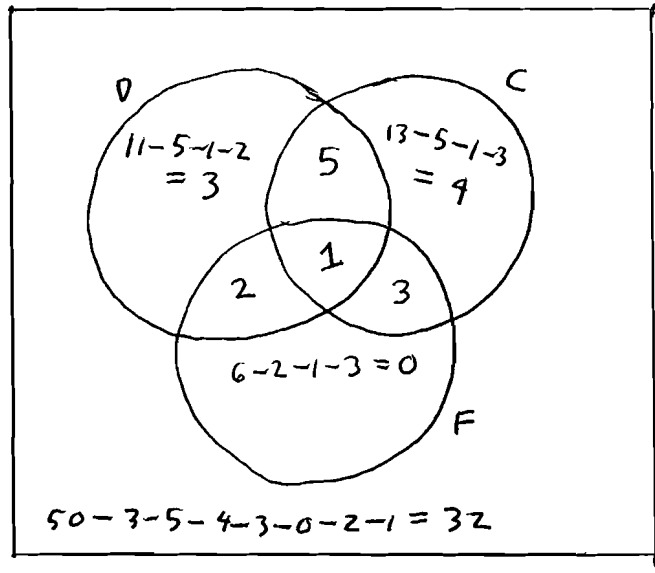
20

(a) 25
(b) 0



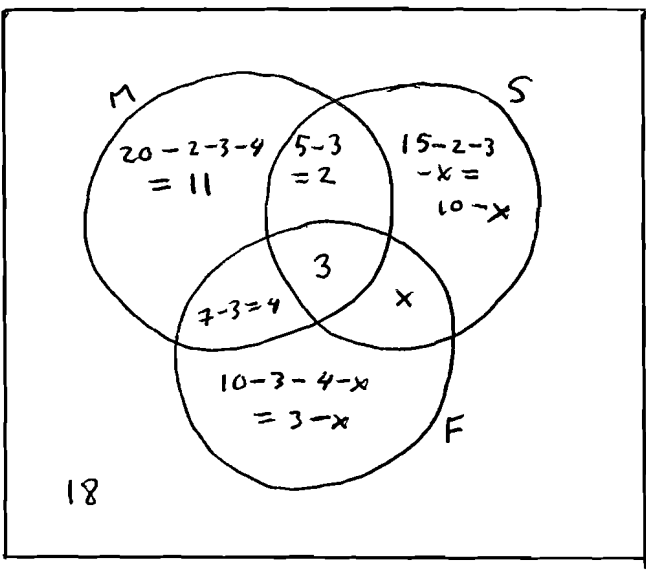
21

32



Problem Ans Reason

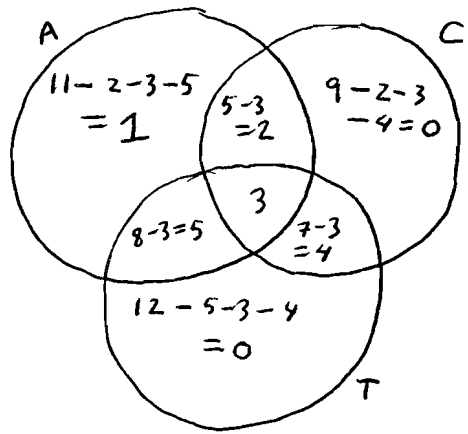
22 1



$$50 = 20 + 10 - x + x + 3 - x + 18$$

$$x = 1$$

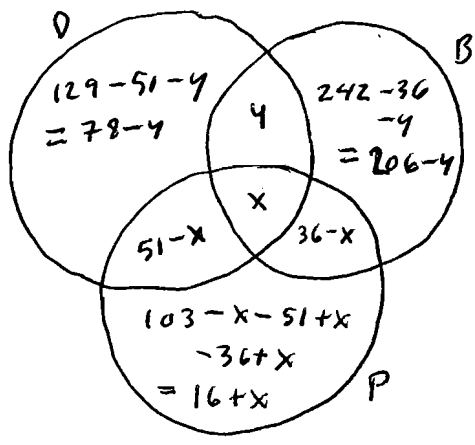
23 15



$$3 + 2 + 4 + 5 + 1 + 0 + 0 = 15$$

Problem Ans Reason

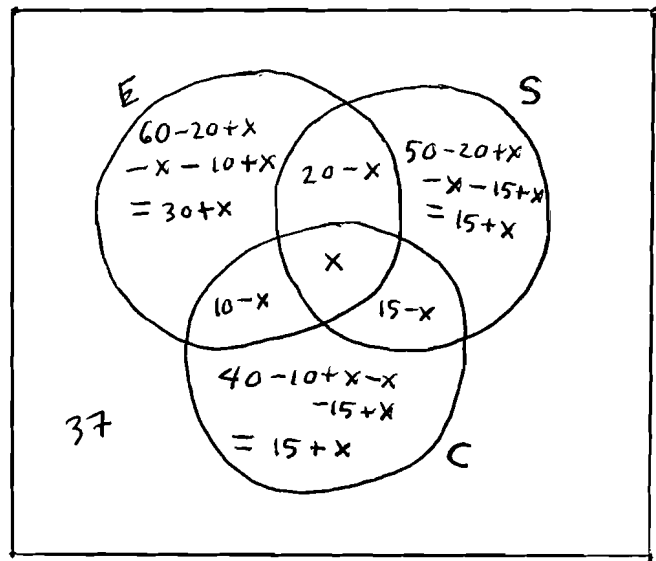
24 99



$$103 + 78 - y + y + 206 - y = 288$$

$$y = 99$$

25 8

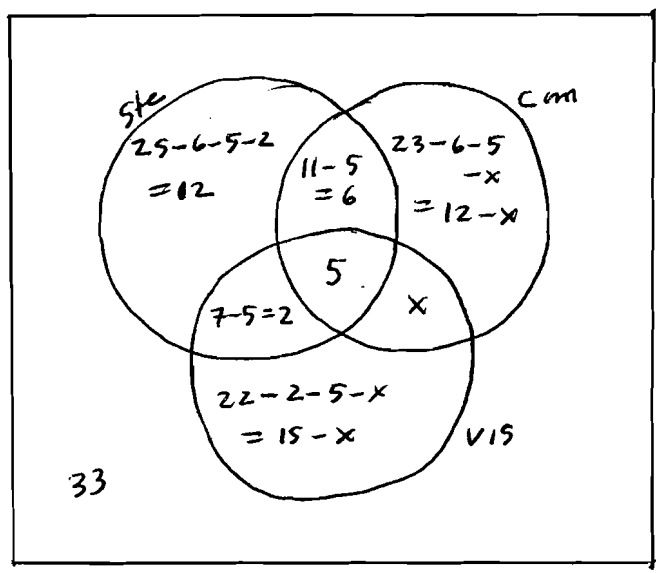


$$x + (10 - x) + (20 - x) + (15 - x) + (30 + x) + (15 + x) + (15 + x) + 37 = 150$$

$$x = 8$$

| Pr.blem | Ans | Reason |
|---------|-----|--------|
|---------|-----|--------|

26
(a) 3
(b) 33

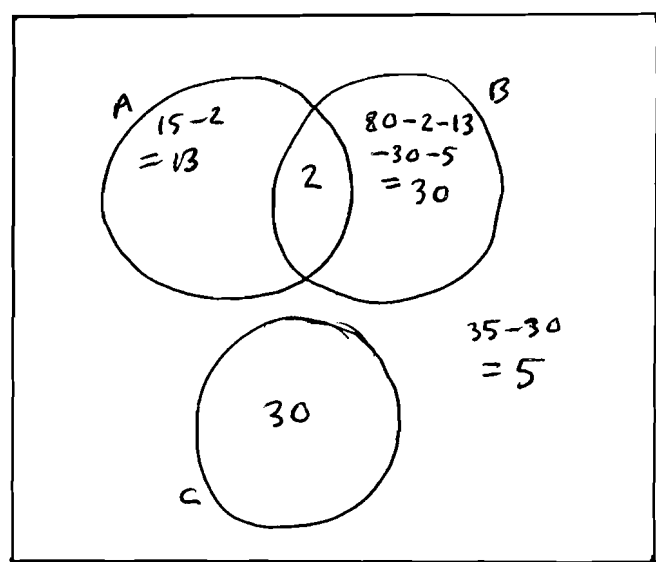


$$5 + 6 + x + 2 + 12 + 12 - x + 15 - x + 33 = 82$$

$$x = 3$$

$$12 + 9 + 12 = 33$$

27
(a) 50
(b) 0
(c) 30



$$n(C') = 13 + 2 + 30 + 5 = 50$$

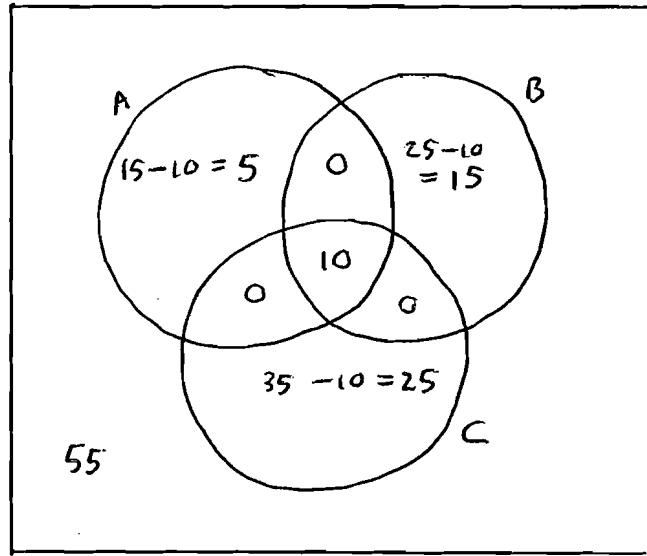
Pr. Problem

Ans

Reason

28

110



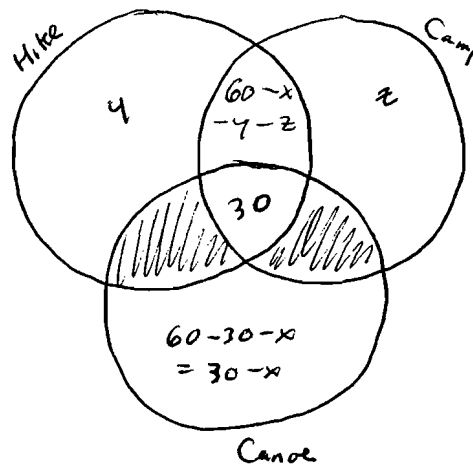
$$n(u) = 10 + 0 + 0 + 0 + 5 + 15 + 25 + 55 = 110$$

29

x is an integer

such that

$$0 \leq x \leq 30$$



$x = \#$ in shaded region

Require $x \geq 0$

$30 - x \geq 0$

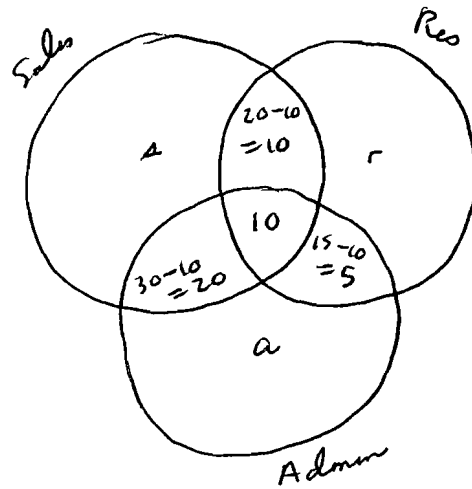
Pr. Item

Ans

Reason

30

- (a) 50
- (b) 60
- (c) 20



$$A + 10 + 10 + 20 = a + 20 + 10 + 5$$

$$= 2(r + 10 + 10 + 5)$$

∴ $A = 2r + 10$, $a = 2r + 15$

$$95 = A + r + a + 10 + 10 + 5 + 20$$

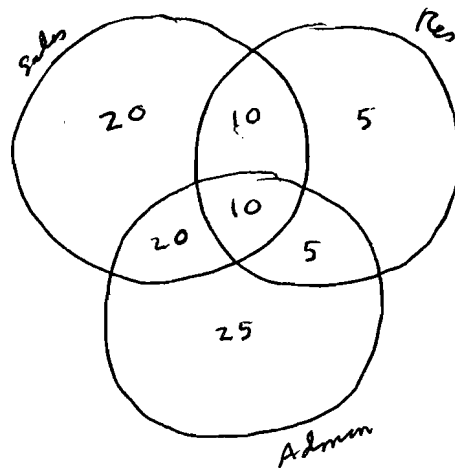
$$= 2r + 10 + r + 2r + 15 + 10 + 10 + 5 + 20$$

$$= 5r + 70$$

$$5r = 25, \quad r = 5$$

∴

$$A = 20, \quad a = 25$$



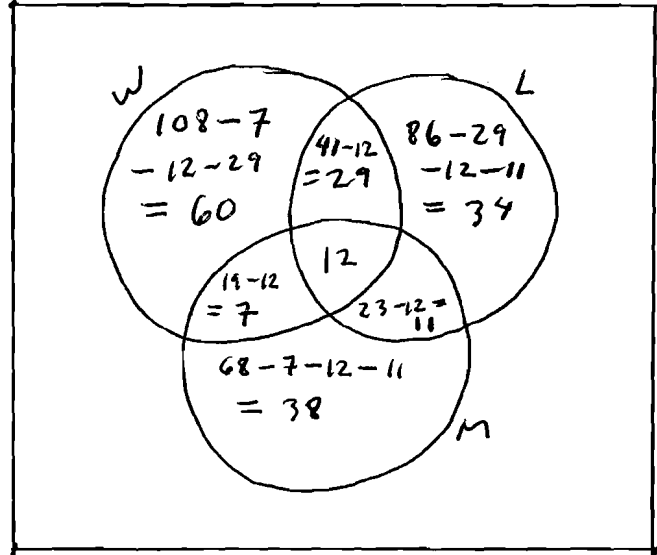
Problem

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31

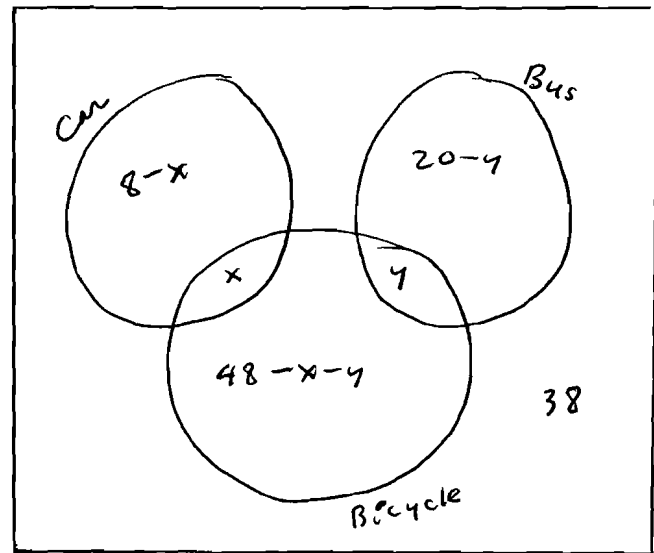
9



$$200 - 12 - 29 - 11 - 7 - 60 - 34 - 38 = 9$$

32

14



$$100 = 8 + 20 + 48 - x - y + 38$$

$$x + y = 14$$

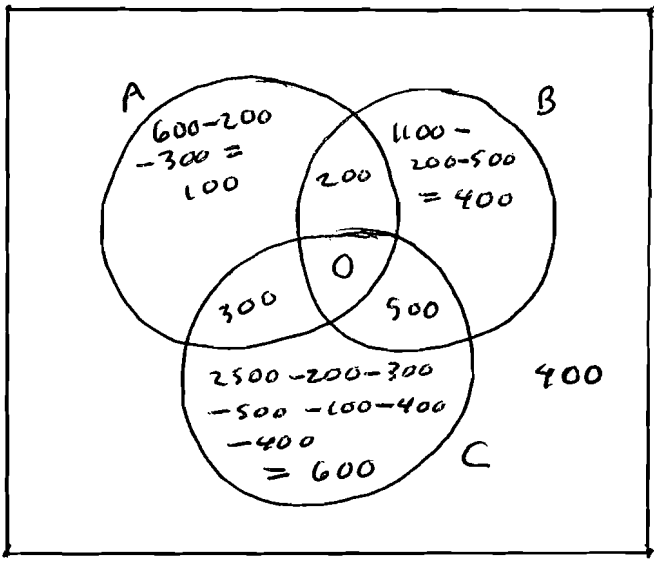
Problem

Ans

Reason

33

1400



$$600 + 300 + 500 = 1400$$