

HW 2: Solutions / Answers

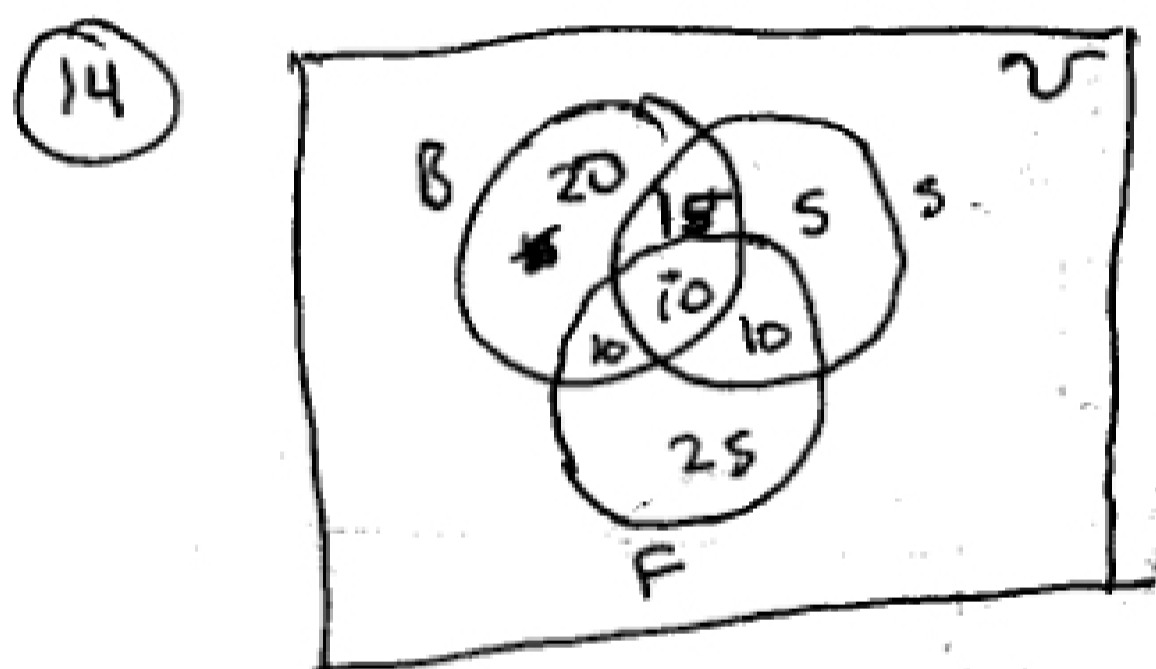
2 (a) Equiv (b) Not equiv (c) Equiv (d) Not equiv.

6 (a) Correspondence: $0 \leftrightarrow 1, 1 \leftrightarrow 2, 2 \leftrightarrow 3, \dots$
 is 1-1 so $\mathbb{W} \sim \mathbb{N}$

(b) Correspondence: $\text{Odd} \leftrightarrow \text{Odd} + 1$ is
 1-1 so $\mathbb{D} \sim \mathbb{E}$.

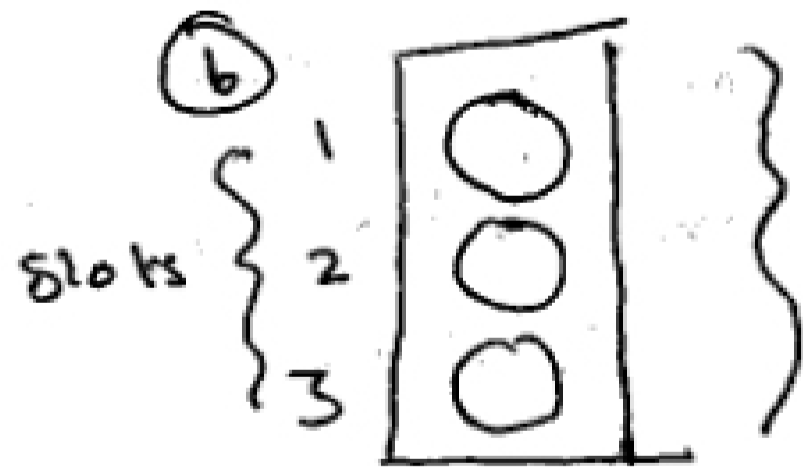
(c) Correspondence: $1 \leftrightarrow 10^1, 2 \leftrightarrow 10^2, \dots, n \leftrightarrow 10^n$
 is 1-1 so sets are equiv.

9 T, F, T, T



$20 + 5 + 25 = 50$ %
 like just one

22 a, b (a) 6: yrg, rgy, gyr, ygr, gry, ryg



3 Choices for slot 1
 2 Choices for slot 2
 1 Choice for slot 3

6 ways.

Other ways are possible to solve problem

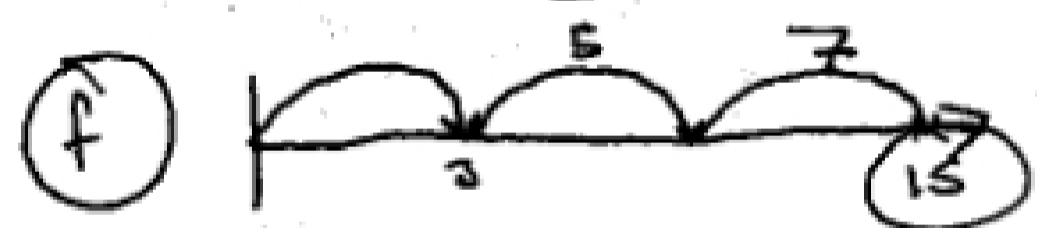
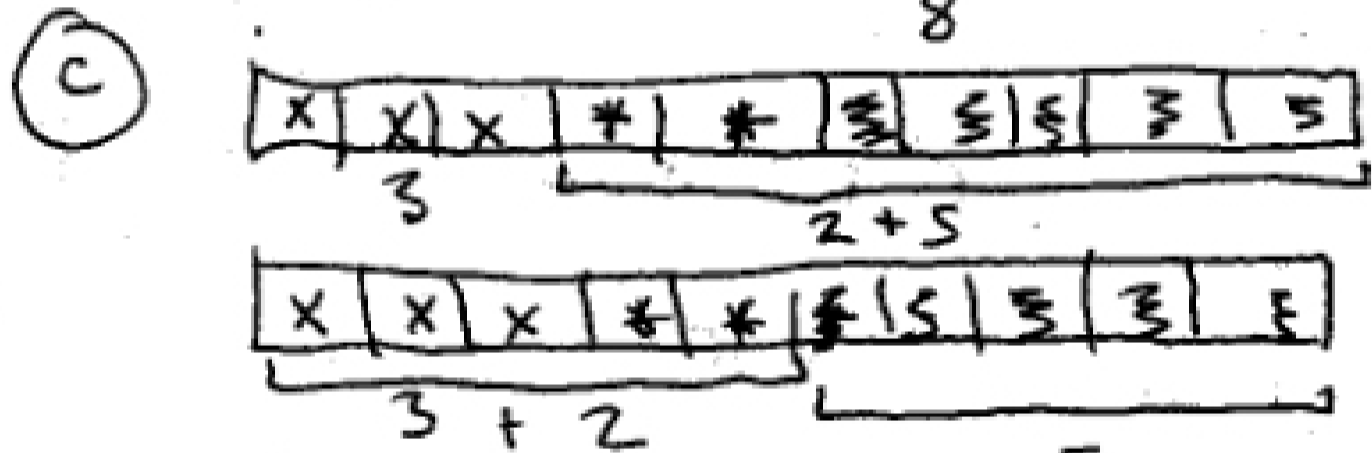
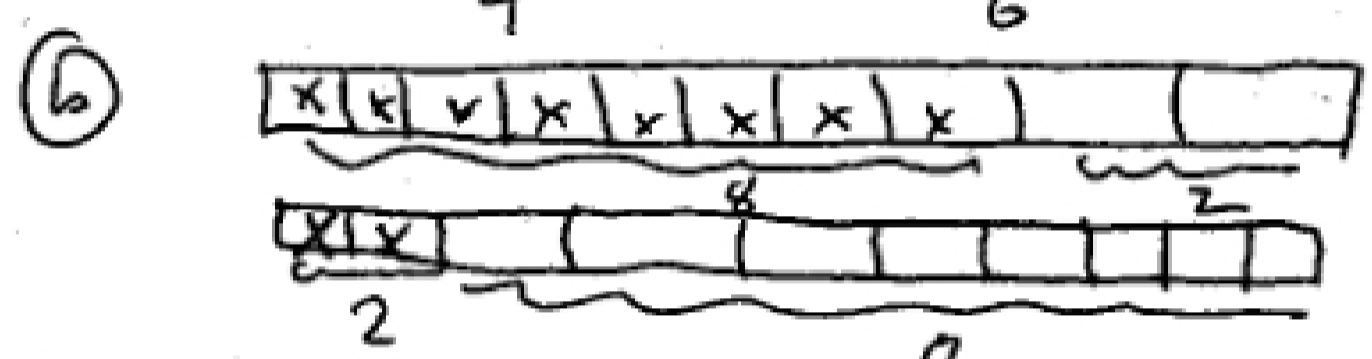
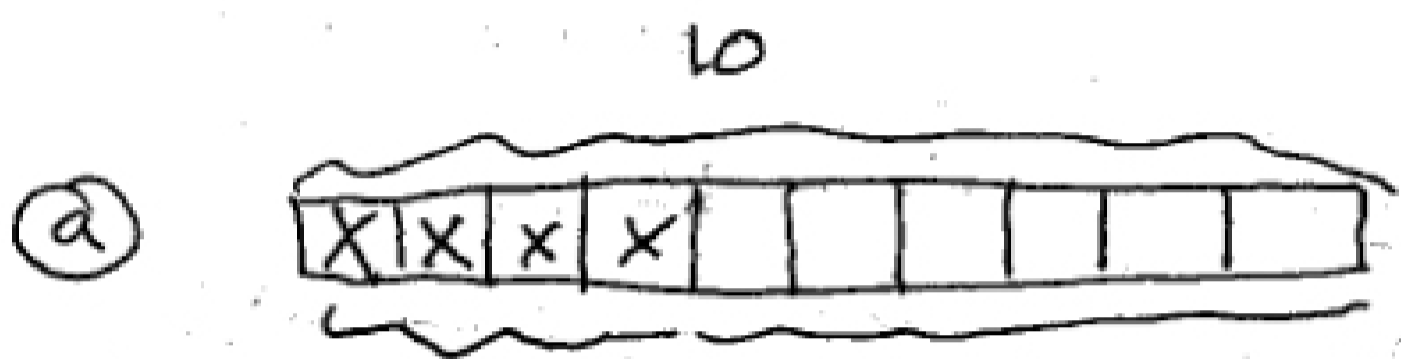
You could use part (a) for example.

38 13

- 40
- (a) {b, c, f, g}
 - (b) {e}
 - (c) {a, b, d, c}
 - (d) {a, d}
 - (e) {b}
 - (f) {a, b, c, d, f, g}
 - (g) {a, c, d, f, g}

2.3:

3



(6) The school is 18 miles east from your house and the library is 25 miles east of the school. How far east is the library from your house?

(5) There are 30 marbles in the red bag and 28 marbles in the blue bag. If red bag is poured into the blue

bag how many marbles are now in the blue bag?

(9) (a) $1+2+3+\dots+20 = (1+20) + (2+19) + (3+18) + \dots + (10+11)$
 $= \underbrace{21 + 21 + 21 + \dots + 21}_{10 \text{ times}}$

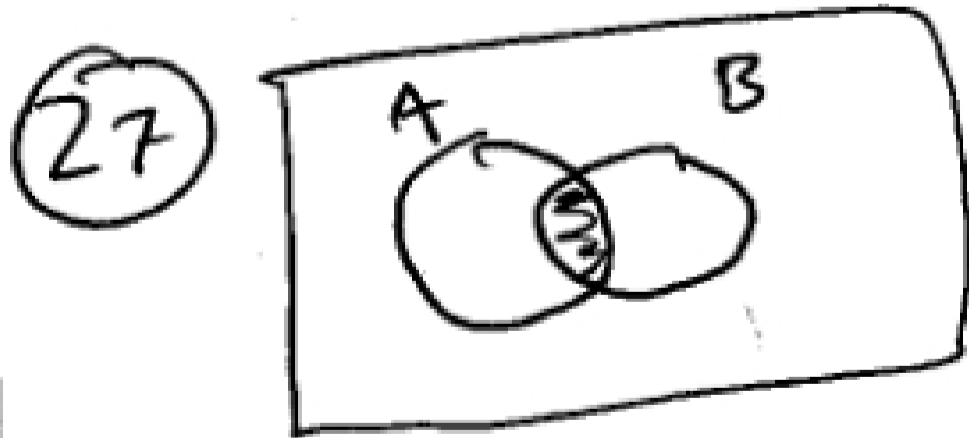
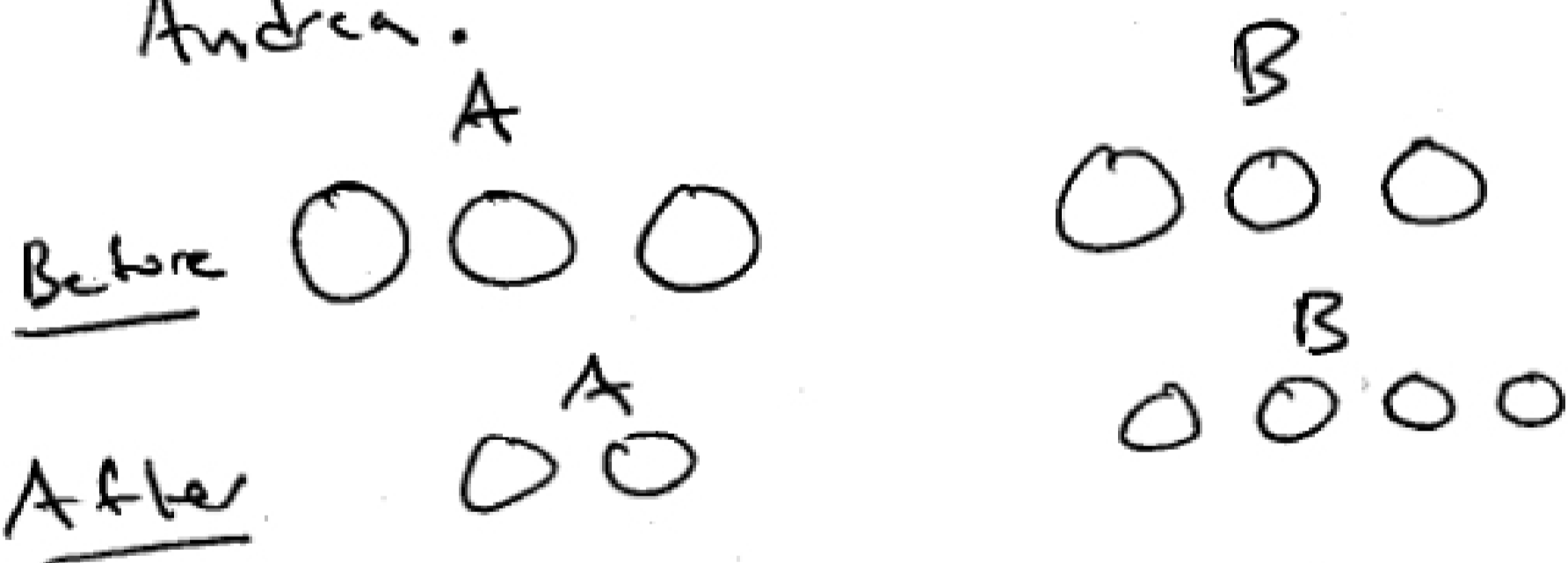
$= 210$

(b) Associativity & commutativity of (+)

(10) Omitted.

(19) Blake has one more marble than Andrea has one fewer.
 So Blake has two more marbles than Andrea.

Diagram



$n(A)$ is number of things in A. $n(B)$ is number of things in B. But $A \cap B$ is contained in both A and B

so the things in $A \cap B$ get counted once in $n(A)$ and once in $n(B)$. So they