HOTsheet

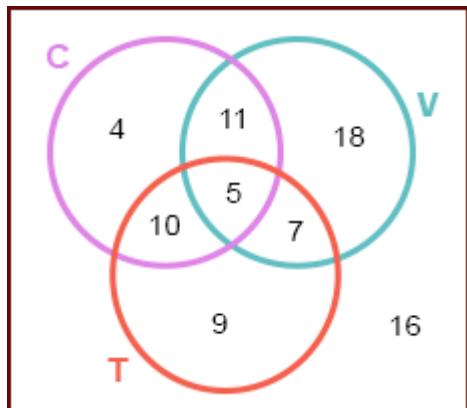**PROBABILITIES FROM DATA DISPLAYS**   **SOLUTIONS**

TASK 1   **Use a Venn diagram to find probabilities**

There are 80 members in the travel club.

a P(did not visit any of the 3 countries) $= \dfrac{16}{80} = \dfrac{1}{5}$

b P(visited all 3 countries) $= \dfrac{5}{80} = \dfrac{1}{16}$

c P(visited China) $= \dfrac{30}{80} = \dfrac{3}{8}$

d P(only visited China) $= \dfrac{4}{80} = \dfrac{1}{20}$

e P(visited at least 2 of the countries) $= \dfrac{11+5+7+10}{80} = \dfrac{33}{80}$

f P(visited only one country) $= \dfrac{4+18+9}{80} = \dfrac{31}{80}$

g P(visited Vietnam and Thailand but not China) $= \dfrac{7}{80}$

TASK 2   **Create a diagram or table to find probabilities**

	Sport		
	Cycling	**Not cycling**	**Totals**
Snorkelling	12	3	15
Not snorkelling	20	15	35
Totals	32	18	50

a P(cycling but not snorkelling) $= \dfrac{20}{50}$

$= \dfrac{2}{5}$

b P(only one of these sports) $= \dfrac{20+3}{50}$

$= \dfrac{23}{50}$

c P(at least one of the sports) $= \dfrac{20+3+12}{50}$

$= \dfrac{35}{50}$

$= \dfrac{7}{10}$

d P(neither of the sports) $= \dfrac{15}{50}$

$= \dfrac{3}{10}$

TASK 3   **Use a two-way table to find probabilities**

Janine's books

	Fiction	Non-fiction	Totals
Hardcover	13	44	57
Softcover	89	7	96
Totals	102	51	153

a $P(\text{fiction}) = \dfrac{102}{153}$

$= \dfrac{2}{3}$

b $P(\text{hardcover}) = \dfrac{57}{153}$

$= \dfrac{19}{51}$

c $P(\text{non-fiction}) = \dfrac{51}{153}$

$= \dfrac{1}{3}$

d $P(\text{softcover}) = \dfrac{96}{153}$

$= \dfrac{32}{51}$

e $P(\text{fiction and hardcover}) = \dfrac{13}{153}$

f $P(\text{non-fiction and softcover}) = \dfrac{7}{153}$

g $P(\text{fiction and softcover}) = \dfrac{89}{153}$

h $P(\text{neither fiction nor hardcover}) = \dfrac{7}{153}$

i $P(\text{either fiction or softcover}) = \dfrac{13+7+89}{153}$

$= \dfrac{109}{153}$

Also, this is the complement of:

$P(\text{non-fiction and hardcover}) = \dfrac{44}{153}$

So you can use: $1 - \dfrac{44}{153} = \dfrac{109}{153}$

j $P(\text{either non-fiction or softcover}) = \dfrac{44+7+89}{153}$

$= \dfrac{140}{153}$

Also, this is the complement of:

$P(\text{fiction and hardcover}) = \dfrac{13}{153}$

So you can use: $1 - \dfrac{13}{153} = \dfrac{140}{153}$

k There are 96 softcover books.

$P(\text{fiction}) = \dfrac{89}{96}$

l There are 102 fiction books.

$P(\text{softcover}) = \dfrac{89}{102}$