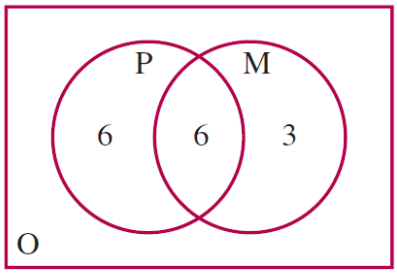
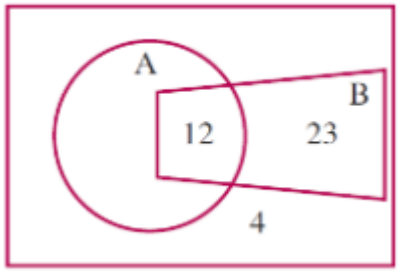
5 This Venn diagram shows the choices made by a group of 15 friends who were all keen to go to a particular movie, *M*, on Friday night and were also invited to a party, *P*, on Saturday night. What is the probability that a person chosen at random:

a went to both party and movie?
b went to the movie but not the party?
c went to the party?
d did not attend either movie or party?



The Venn diagram contains a total of 40 members.
Find the probabilities:

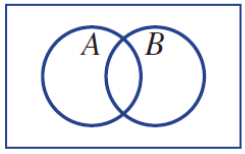
a) P(B)
b) P(A)
c) P(not A)
d) P(B but not A)
e) P(neither B nor A)



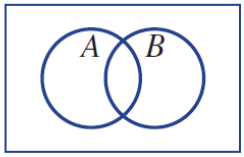
11 In a group of 20 families, 5 families took overseas holidays between 2006 and 2010. 16 of the families took interstate holidays within Australia during this time, and two families did not travel overseas nor interstate. Draw a Venn diagram to illustrate this information.

shade the region described by each of the following.

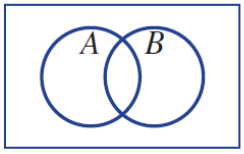
a A



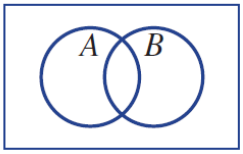
b B



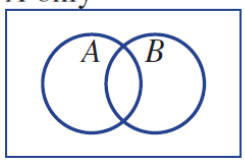
c $A \cap B$



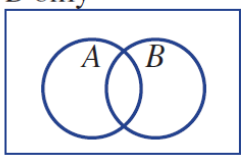
d $A \cup B$



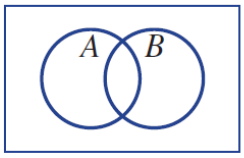
e A only



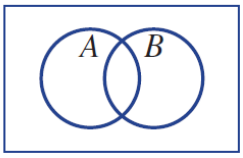
f B only



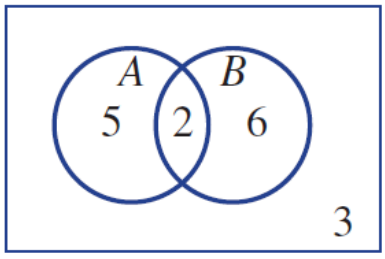
g $\overline{A}$



h neither A nor B



8 The Venn diagram shows the distribution of elements in two sets, A and B.



Find

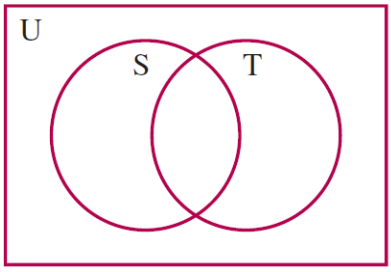
1) n(A)
2) n(B)
3) n(B')
4) n(A∪B)

5) n(A∩B)
6) n(A'∩B)
7) n(A∩B')
8) n(A'∩B')

Find

1) p(A∩B)
2) p(A')
3) P(A∩B')

10 Using the information in this Venn diagram find the probabilities $P(T)$, $P(S)$, $P(S$ and $T)$.
Total number in S and/or $T = 50$
$n(T) = 36$
$n(S) = 20$.



3. The two-way table gives some information about how 100 children travelled to school one day.

	Walk	Car	Other	Total
Boy	15		14	54
Girl		8	16	
Total	37			100

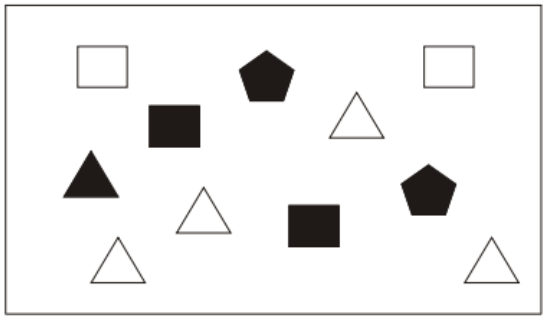
a) Complete the two-way table.

b) One of the children is picked at random. Write down the probability that this child walked to school that day.

c) One of the girls is picked at random. Work out the probability that this girl did not walk to school that day.

4. The diagram shows some 3-sided, 4-sided and 5-sided shapes.

The shapes are black or white.



(a) Complete the two-way table. (

	Black	White	Total
3-sided shape		4	5
4-sided shape	2		
5-sided shape		0	
Total			11

Ed takes a shape at random. Write down the probability the shape is white and 3-sided.

10. 56 students were asked if they watched tennis yesterday.
20 of the students are boys.
17 girls watched tennis yesterday.
32 students did not watch tennis yesterday

One of these students is to be chosen at random.

Write down the probability that the student chosen will be a boy who watched tennis yesterday.
Give your answer as a fraction in its simplest form.

A group of 80 people was surveyed about their approaches to keeping fit. It was found that 20 jog, 22 swim and 18 go to the gym. Further questioning found that 10 people both jog and swim, 11 people both jog and go to the gym, and 6 people both swim and go to the gym. Finally, 43 people do none of these activities. Draw a VENN diagram summarising this information, and then find how many of the people do all three activities.