# “and” versus inclusive/exclusive “or”

6 questions | 11 marks

Equivalent correct methods earn the corresponding marks.

**1.** List die results that are even and greater than 2. [1 mark]

Start with 2,4,6 and remove 2.

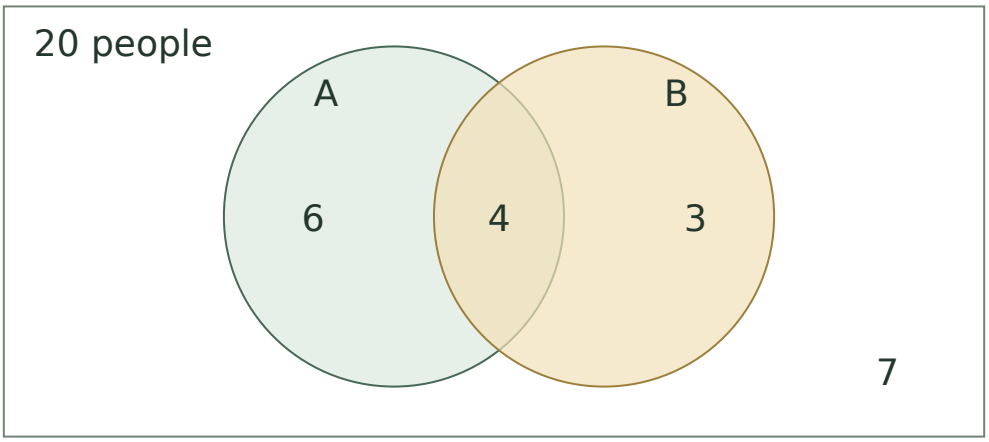
**Answer:** 4 and 6.

**2.** Find $P(\text{odd or a } 6)$ for a fair die. [2 marks]

Favourable results are 1,3,5,6: four of six.

**Answer:** $\frac{2}{3}$

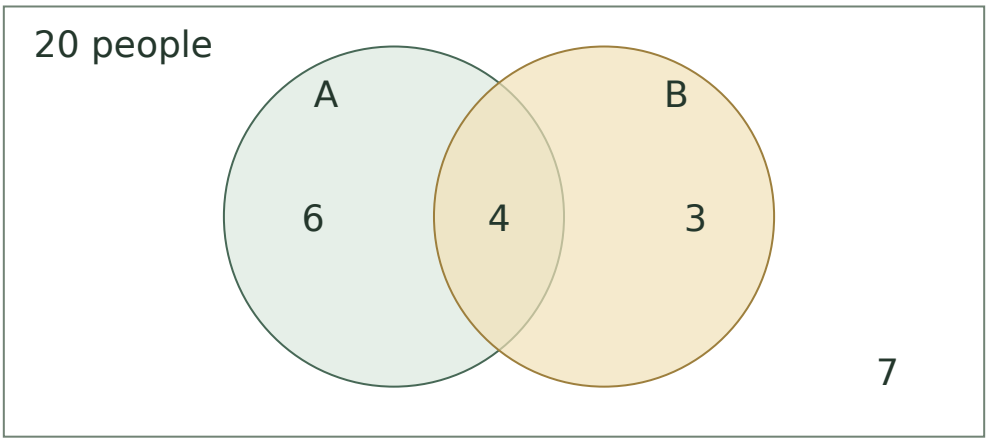
**3.** One person is chosen at random from the displayed group. Use the diagram to find $P(\text{A and B})$. [2 marks]




The overlap is 4 of 20.

**Answer:** $\frac{1}{5}$

**4.** One person is chosen at random from the displayed group. Use the diagram to find $P(\text{A or B})$. [2 marks]




$6+4+3=13$ people are in at least one group.

**Answer:** $\frac{13}{20}$

**5.** Of 30 students, 18 play football, 12 tennis and 5 both. How many play at least one? [2 marks]

$18+12-5=25$; subtract the double-counted overlap.

**Answer:** $25$

**6.** Of 30 students, 18 play football, 12 play tennis and 5 play both. One student is chosen at random. Find $P(\text{neither sport})$. [2 marks]

$30-25=5$ play neither.

$\frac{5}{30}=\frac{1}{6}$.

**Answer:** $\frac{1}{6}$