

## Probability Rules

The “AND” and “OR” Rule	
The probability that <b>A and B</b> both occur	$P(A \text{ and } B) = P(A) \times P(B)$
The probability that either <b>A or B</b> occur	$P(A \text{ or } B) = P(A) + P(B)$

**Instructions:** Answer the probability questions below.

You roll a 6-sided die and toss a coin at the same time.	
1	What is the probability of rolling a 2 or 3?
2	What is the probability of rolling a 5 and landing on heads?
3	What is the probability of rolling an even number and landing on 'tails'?
4	What is the probability of rolling a 1, 2, 4 or 6 and landing on heads?



A team of 42 employees (18 females, 24 males) work at Alfred's Supermarket. This Monday, only an eighth of all employees are rostered on to work.

1

What is the probability that a female employee is working on Monday?

2

What is the probability that an employee is not working on Monday?

3

What is the probability that a male employee is not working on Monday?

A group of 72 students are in a room (45 females, 27 males). The probability that a student is new to the school is  $P(\text{new}) = 1/5$ .

1

What is the probability of that a new female student is selected?

2

What is the probability that a female student or any new student is selected?

3

What is the probability that a male student who is not new is selected from the group?

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**Instructions:** Answer the probability questions below.

32 people were surveyed (14 female, 18 male) about whether or not they own a car. A quarter of the respondents said yes.

- 1 What is the probability that a person surveyed was female?
- 2 What is the probability that a person surveyed was male or said yes?
- 3 What is the probability that a person surveyed was female and said no?
- 4 What is the probability that a person surveyed was male and said no?



A deck of 52 cards is shuffled. As each card is dealt, it is replaced in the deck so that the deck always has 52 cards.

1

What is the probability of drawing a diamond or spade card?

2

What is the probability of drawing a king and then a queen?

3

What is the probability of drawing a red card and then a jack or ace?

64 animals are at a pet store (48 dogs, 16 cats).  
Of all the animals, half of them are brown, a sixth of them are white  
and the rest are black.

1

What is the probability that a dog is brown?

2

What is the probability that a cat is white or brown?

3

What is the probability that a dog is black or brown?