

Now

In Chapter 10, you will apply the big ideas listed below and reviewed in the Chapter Summary on page 733. You will also use the key vocabulary listed below.

Big Ideas

- 1 Using permutations and combinations
- 2 Finding probabilities
- 3 Constructing binomial distributions

KEY VOCABULARY

- permutation, p. 684
- combination, p. 690
- binomial theorem, p. 693
- probability, p. 698
- compound event, p. 707
- overlapping events, p. 707
- disjoint events, p. 707
- independent events, p. 717
- dependent events, p. 718
- conditional probability, p. 718
- random variable, p. 724
- binomial distribution, p. 725

Why?

You can use the fundamental counting principle and permutations to calculate the number of choices for a situation. For example, you can count the number of possible outcomes of an event or the number of ways to complete a task.

Animated Algebra

The animation illustrated below for Exercise 69 on page 689 helps you answer this question: How does the number of clothing choices affect the number of different ways can you dress mannequins in a display?

The screenshot shows an interactive animation window. On the left, a mannequin display is shown with three mannequins wearing different outfits. A 'Start' button is at the bottom right of this window. Below the display, text reads: 'Different outfits for a store display can be made using several tops and bottoms.'

On the right, a control panel shows clothing options. Under 'TOP', there are three icons: a green T-Shirt, a blue Polo shirt, and a red Long Sleeve shirt. Under 'BOTTOM', there are two icons: yellow Shorts and blue Jeans. A mannequin icon is shown in a grey box. Below these options, there are two equations for calculation:

$$\begin{aligned} \text{Total number of display choices for first mannequin} &= \text{[input box]} \\ \text{Total number of display choices for second mannequin} &= \text{[input box]} \\ \text{Total number of display choices for both mannequins} &= \text{[input box]} \cdot \text{[input box]} \end{aligned}$$

A 'Check Answer' button is at the bottom right of the control panel. Below the equations, text reads: 'Find the total number of possible displays if there are one, two, or more mannequins.'

Animated Algebra at classzone.com

Other animations for Chapter 10: pages 701, 711, 716, 722, and 726