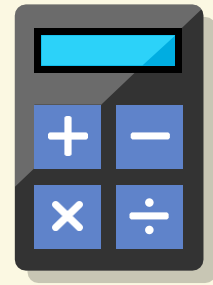




Modelling profit and loss with linear and quadratic functions



This sequence is intended as a framework to be modified and adapted by teachers to suit the needs of a class group

Resources needed

- Linear functions for business – Visualiser
- Linear functions for business – Worksheet
- An introduction to quadratic functions – Visualiser
- Quadratic functions – Worksheet
- Applying quadratics to business – Visualiser
- Applying linear and quadratic functions - Investigation

Suggested activity sequence

Part A: Linear functions

- 1 Use the *linear functions visualiser* to explicitly teach students about different linear functions that can be applied to business situations.
- 2 Students complete the *linear functions worksheet*.

Part B: Introduction to quadratic functions

This part is optional and will depend on students' prior knowledge and understanding.

- 1 Elicit students' understanding of quadratic functions by asking several questions. Use the *quadratic functions worksheet* as a guide or give them the worksheet to complete.

- 2 If needed, display and explain the *introduction to quadratic functions visualiser*.
- 3 Students complete the *quadratic functions worksheet* (you may ask them to complete this even if they were given it previously).

Part C: Applying quadratic functions to business situations

- 1 Display and explain *the applying quadratics to business visualiser*.
- 2 Give students a few practice questions on solving quadratic equations. For example: Solve the following quadratic equation by factoring and by graphing. Are your answers the same?

$$x^2 + 6x + 5 = 0$$

Solve the following quadratic equations. For each solution explain what method you used and why.

$$x^2 - 4x + 4 = 0$$

$$2x^2 + 12x + 50 = 0$$

$$2x^2 - 5x + 7 = 0$$

- 3 Students complete the *investigation*. Students may benefit from working individually and/or in small discussion groups.