Mathematics For Queensland
Year 11 Mathematics B
Chapter One

Investigation - Another form of the linear function

The equation $y = mx + c$ is called the gradient-intercept form of a linear function, as c is the y-intercept of the graph and m is the gradient. As you have learned, it is easy to sketch the graph of the function if you know the gradient-intercept form.

Now consider the following form of the linear function: $y = m(x - k)$. Investigate this using a graphics calculator, as follows:

1. Choose a fixed value for k, and draw the graphs for different values of m.

2. Repeat step 1, using different values for k.

3. Choose a fixed value for m, and draw the graphs for different values of k.

4. Repeat step 3, using different values for m.

5. Explain in words what m and k represent.

6. Without expanding the right-hand side, sketch the function $y = -\dfrac{1}{3}(x - 2)$.

7. Assume you are tutoring a Year 10 student who already knows how to sketch functions of the form $y = mx + c$. Write to this student, explaining how to quickly sketch the graph of $y = m(x - k)$.