

SME M1

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Practice Problems

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Sketch your graphs freehand. Don't use a ruler unless it's absolutely necessary. Use blank (no lines) paper if you have it. We are not trying to produce perfect graphs: we just want graphs that contain the essential ideas about a curve. Don't include details that are not important.

Make sure that you do the following:

- Plot the axes and label them.
- Label all the important features (lines, curves, points of intersection, etc.)
- Label and explain graph operations (shift, rotate, etc.)
- Give equations for your curves, and for each operation step.

1 Constant curves and points

1. On the same pair of axes, plot $y = 1$, $y = 5$ and $y = -3$.
2. Plot $x = -2$, $x = -1$, $x = 5$ on the same axes.
3. Plot the point $P(1, 3)$ and show the constant lines. Give an interpretation of the symbol $(1, 3)$ in English.
4. Plot the point $Q(-3, -2)$ and give an interpretation in English. Show all important features of this graph, including the constant curves, axes, labels etc.

2 Shift operations

3 Stretch and shrink

4 Rotations