Algebra Revision Mat

Expanding Brackets
1) $(2x + 3)(x + 8)$

2) $(3x - 2)(4x - 1)$

3) $(x + 3)(x + 1)(x - 2)$

Factorising and Solving
1) $x^2 - 8x + 15 = 0$

2) $4x^2 - 49 = 0$

3) $6x^2 + 7x - 3 = 0$

Algebraic Fractions
1) Simplify $\dfrac{6x^2 + x - 1}{4x^2 - 1}$

2) Simplify $\dfrac{x + 3}{4x} + \dfrac{x - 2}{x + 1}$

3) Solve $\dfrac{x - 2}{5} + \dfrac{2x - 3}{x} = \dfrac{8}{5}$

Quadratic Formula
1) $x^2 + 7x - 3 = 0$

2) $2x^2 + 3x - 1 = 0$

3) $x = 4 - x^2$

Completing the Square
1) $x^2 + 8x + 2 = 0$

2) $2x^2 + 8x - 3 = 0$

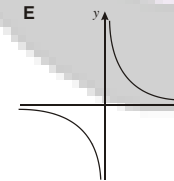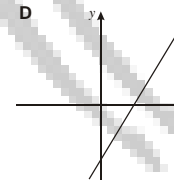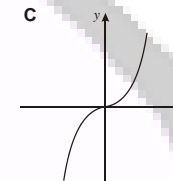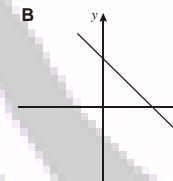## Iterations
$x_{n+1} = \dfrac{(x_n)^3 - 3}{8}$ and $x_1 = -1$

$x_2 =$

$x_3 =$

Types of Graphs
Match the equation to its graph:

Graph (letter)	Equation
	$y = 2x - 5$
	$y = \dfrac{5}{x}$
	$y = 2x^3$
	$y = x^2 - 6$
	$y = 7 - x$
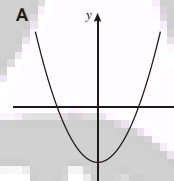
Simultaneous Equations
1) Two sandwiches and a juice cost £3.40. Four sandwiches and three juices cost £7.20. What is the cost of a sandwich.

2) Solve: $y = x + 4$
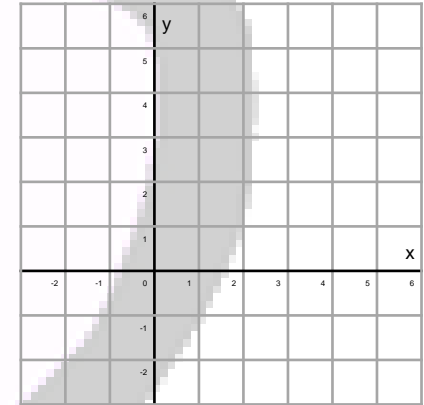$y = x^2 + 4x$

3) Solve: $x^2 + y^2 = 34$
$y = x + 8$

Quadratic Sequences
Find the nth term:
1) -2, 2, 10, 22, 38

2) 3, 15, 33, 57, 87

Solving Inequalities
1) Show the region satisfying $x > 2$, $y > -1$ and $x + y < 5$

2) $2x + 4 < x - 3$

3) $x^2 - 7x + 12 \geq 0$

Rearranging Formulae
Make a the subject of the formula:
1) $F = ma$

2) $v = u + at$

3) $ab + c = bc - a$