- 1. Answer each of the following questions, showing all working.
 - (a) Find f(-4) where $f(x) = -(x^2 + x)$.
 - (b) Find f(4) where $f(x) = x^2 x$.
 - (c) Find f(-4) where $f(x) = -(x^2 x)$.
 - (d) Find the domain of $f(x) = -1 + \sqrt{x}$.
 - (e) Find the domain of $f(x) = \frac{-1}{|-11+x|}$.
 - (f) Find the domain of $f(x) = 2\sqrt{x}$.
 - (g) Find the range of $f(x) = \frac{-11}{|12 + x|}$.
 - (h) Find the range of $f(x) = \frac{3}{\sqrt{5+x}}$.
 - (i) Find the range of $f(x) = 9 + \sqrt{x}$.
 - (j) Solve each of the following quadratic equations without using the quadratic formula.
 - (i) 3x(-x+2) = 0.(ii) (-4x-2)(-3x-1) = 0.(iii) -3(-3x+3)(x-2) = 0.(iv) $(-4x+2)^2 = 0.$
 - (k) Solve $-3x^2 + 2x 1 = 0$.
 - (1) Solve $4x^2 7x = 0$.
- 2. Answer each of the following questions, showing all working.
 - (a) Find f(2) where $f(x) = -x^2 + x$.
 - (b) Find f(-2) where $f(x) = -(x^2 x)$.
 - (c) Find f(1) where $f(x) = x^2 x$.
 - (d) Find the domain of $f(x) = \frac{-13}{-5x+1}$.
 - (e) Find the domain of $f(x) = \sqrt{-8x}$.
 - (f) Find the domain of $f(x) = \frac{-2}{\sqrt{5x}}$.
 - (g) Find the range of $f(x) = \frac{9}{x + |-9|}$.
 - (h) Find the range of $f(x) = \frac{-13}{\sqrt{2+x}}$.
 - (i) Find the range of $f(x) = \frac{14}{-x-1}$.
 - (j) Solve each of the following quadratic equations without using the quadratic formula.
 - (i) 4x(3x+2) = 0.
 - (ii) (2x-1)(3x-3) = 0.
 - (iii) -2(3x+1)(4x-3) = 0.
 - (iv) $(x-2)^2 = 0.$
 - (k) Solve $-3x^2 + 4x 2 = 0$.
 - (1) Solve $3x^2 + 8x = 0$.
- 3. Answer each of the following questions, showing all working.
 - (a) Find f(-3) where $f(x) = x^2 x$.
 - (b) Find f(-4) where $f(x) = -x^2 + x$.
 - (c) Find f(-1) where $f(x) = x^2 + x$.
 - (d) Find the domain of $f(x) = \frac{10}{\sqrt{7x}}$.

- (e) Find the domain of $f(x) = \frac{10}{|-7+x|}$
- (f) Find the domain of $f(x) = \sqrt{12 + x}$.
- (g) Find the range of $f(x) = \frac{-7}{|-8+x|}$.
- (h) Find the range of $f(x) = (x 13)^2$.
- (i) Find the range of $f(x) = \frac{-2}{-2x+5}$.
- (j) Solve each of the following quadratic equations without using the quadratic formula.
 - (i) x(3x+1) = 0.
 - (ii) (-3x-2)(x-3) = 0.
 - (iii) 4(4x+3)(-x+3) = 0.
 - (iv) $(-4x+1)^2 = 0.$
- (k) Solve $4x^2 5x + 4 = 0$.
- (1) Solve $-4x^2 + 7x 3 = 0$.
- 4. Answer each of the following questions, showing all working.
 - (a) Find f(1) where $f(x) = x^2 + x$.
 - (b) Find f(4) where $f(x) = (-x)^2 + x$.
 - (c) Find f(1) where $f(x) = -x^2 + x$.
 - (d) Find the domain of $f(x) = x^2 + 7$.
 - (e) Find the domain of $f(x) = \frac{9}{\sqrt{3r}}$.
 - (f) Find the domain of f(x) = 2 |x|.
 - (g) Find the range of $f(x) = \frac{-6}{|-2+x|}$
 - (h) Find the range of $f(x) = -2x^2 + 8$.
 - (i) Find the range of $f(x) = 11 + \sqrt{x}$.
 - (j) Solve each of the following quadratic equations without using the quadratic formula.
 - (i) 4x(-2x-1) = 0.
 - (ii) (-2x-3)(3x+2) = 0.
 - (iii) 3(-x+3)(2x-2) = 0.

(iv)
$$(x+2)^2 = 0.$$

- (k) Solve $2x^2 3x + 2 = 0$.
- (1) Solve $-2x^2 6x 4 = 0$.

5. Answer each of the following questions, showing all working.

- (a) Find f(-3) where $f(x) = (-x)^2 + x$.
- (b) Find f(4) where $f(x) = -x^2 + x$.
- (c) Find f(-1) where $f(x) = -x^2 x$.
- (d) Find the domain of f(x) = -3 + |x|.
- (e) Find the domain of $f(x) = \frac{-3}{\sqrt{-14+x}}$.
- (f) Find the domain of $f(x) = \frac{-11}{x-5}$
- (g) Find the range of $f(x) = -12 + \sqrt{x}$.
- (h) Find the range of $f(x) = -12\sqrt{x}$.
- (i) Find the range of $f(x) = 2x^2 + 2$.
- (j) Solve each of the following quadratic equations without using the quadratic formula.
 - (i) 4x(x-2) = 0.
 - (ii) (-3x-3)(2x+2) = 0.
 - (iii) 4(4x-3)(-x-2) = 0.
 - (iv) $(-2x+1)^2 = 0.$
- (k) Solve $x^2 + x + 3 = 0$.
- (1) Solve $4x^2 + 5x + 1 = 0$.