

- 1.** [2 points]
State the number of solutions of the following equations:

(a) $x^2 + \frac{1}{4} = x$

(b) $3x^2 + x + 2 = 0$

- 2.** [2 points]
Write down the sum and product of the solutions to the equations below:

(a) $2x^2 - x = 10$

(b) $4x^2 + 1 = x^2 - x + 2$

- 3.** [5 points]
Find the set of values of k for which the equation below has (i) 0, (ii) 1, (iii) 2 real solutions.

$$x^2 + 2kx + 2k = 3x$$

- 4.** [4 points]
Find the set of values of m for which the equation below has two real solutions whose product is positive:

$$x^2 + mx + m + 3 = 0$$