(1) $f(x) = 3x - 1, \ x \in R$
(a) On separate sets of axes, sketch the graphs of:
(i) $y = f(x)$ (ii) $y = |f(x)|$
(iii) $y = f(|x|)$, showing where each graph meets or crosses the coordinate axes.
(b) Solve the equation $|f(x)| = 2x$
(c) Hence, solve the inequality $|f(x)| < 2x$
(2) (a) Given that the equation $|5x + 2| + k = 4$ has no real solutions, state the set of values for which k is valid.
(b) Explain why there are no solutions to the equation
    $-|5x + 2| = b$ where b is a positive constant.
(3) $f(x) = x^2 - x - 6, x \in R$
(a) On separate sets of axes, sketch the graphs of:
(i) $y = f(x)$ (ii) $y = |f(x)|$
(iii) $y = f(|x|)$, showing where each graph meets or crosses the coordinate axes.
(b) State the **number** of real solutions to each of the following equations:
(i) $|x^2 - x - 6| = 1$
(ii) $|x^2 - x - 6| = -1$
(iii) $|x^2 - x - 6| = k$, for $k > 30$