Quadratics inequalities

Name - _ _ _ _ _ _ _ _ Start time - _ _ : _ _ End time - _ _ : _ _

Solve the following.

Consider the inequality $4x \leq 12 - x^2$.

a) Rearrange the inequality into the form $g(x) \leq 0$, where $g(x)$ is a quadratic expression.

b) (i) Factorise $g(x)$.

(ii) Write down the x-coordinates of the points where the graph of $y = g(x)$ crosses the x-axis.

c) Hence solve the inequality $4x \leq 12 - x^2$.

Solve each of these inequalities.

a) $x^2 - x - 2 \leq 0$

b) $x^2 + x - 2 < 0$

c) $x^2 + 6x + 5 \leq 0$

d) $x^2 - x - 12 \geq 0$

e) $x^2 - 7x + 12 \leq 0$

f) $x^2 + 10x + 24 \geq 0$

g) $x^2 + 2x - 15 < 0$

h) $x^2 - 10x - 11 \leq 0$

i) $x^2 - 8x + 15 > 0$

j) $x^2 - 6x - 7 < 0$

k) $x^2 - 6x - 16 < 0$

l) $x^2 + 11x + 18 < 0$

Solve each quadratic inequality and show the solution on a number line.

a) $x^2 - 2x > 48$

b) $x^2 - 3x \leq 10$

e) $5x \geq 36 - x^2$

f) $x^2 < 9x + 22$