

W6 – 2.5 – Solving Inequalities

MHF4U

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1) Solve each linear inequality

a) $x + 3 \leq 5$

b) $7x < 4 + 3x$

2) Solve each inequality by graphing

a) $(x + 3)(x - 2) > 0$

b) $(x + 2)(3 - x)(x + 1) < 0$

3) Solve each of the following polynomial inequalities

a) $x^2 - 7x + 10 \geq 0$

b) $x^3 + 6x^2 - 16x > 0$

c) $-x^2 + 36 \geq 0$

d) $x^4 - 26x^2 + 25 > 0$

e) $x^3 - 3x^2 \geq 25x - 75$

f) $-x^3 + 28x + 48 \geq 0$

g) $x^3 - 2x^2 - 5x + 6 < 0$

h) $5x^3 - 12x^2 - 11x + 6 \leq 0$

4) The price, p , in dollars, of a stock t years after 1999 can be modelled by the function $p(t) = 0.5t^3 - 5.5t^2 + 14t$. When will the stock be more than \$90? You may use technology to help you determine the solution.

ANSWER KEY

1)a) $x \leq 2$ **b)** $x < 1$

2)a) $x < -3$ or $x > 2$ **b)** $-2 < x < -1$ or $x > 3$

3)a) $x \leq 2$ or $x \geq 5$ **b)** $-8 < x < 0$ or $x > 2$ **c)** $-6 \leq x \leq 6$ **d)** $x < -5$ or $-1 < x < 1$ or $x > 5$

e) $-5 \leq x \leq 3$ or $x \geq 5$ **f)** $x \leq -4$ or $-2 \leq x \leq 6$ **g)** $x < -2$ or $1 < x < 3$

h) $x \leq -1$ or $\frac{2}{5} < x < 3$

4) after 10 years (2009)