2.6 Solving Inequalities Worksheet

This document was composed and formatted by Annie Bernatchez.

The course material originated from www.jensenmath.ca

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

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

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

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

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

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

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

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

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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 $\frac{2}{5} \leq x \leq 3$

4) $t > 10$ (i.e., after the year 2009)

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