1. Solve the inequality

$$|2x - 3| < x.$$ [4]

(nov2003)

2. (a) (i) Sketch the graph of $f(x) = (x + 2)(x - 3)$. [1]

(ii) Sketch the graph of $y = |f(x)|$ [1]

(iii) By using the graphs of $y = |f(x)|$ and $y = |2x - 2|$, or otherwise, solve the inequality $|2x - 2| \geq |f(x)|$. [4]

(june2004)

1. Solve the inequality $|2x + 3| > 7$. [3]

Sketch, on the same axes, the graphs of $y = |2x - 3|$ and $y = x + 1$. Hence or otherwise, solve the inequality $|2x - 3| < x + 1$. [4]

(nov2007)

Given that $2^x - 2^{-x} = 4$,

(i) solve the equation for x, [4]

(ii) show that $|2^x + 2^{-x}| = 2\sqrt{5}$. [3]

(nov2007)

1 Solve the equation

$$|3 - 2x| = 3x + 4.$$ [4]

4 **(a)** On the same axes, sketch the graphs of $y = |x - 1| - 2$ and $y = -|x - 1|$. [2]

(b) Solve the equation $|x - 1| - 2 = -|x - 1|$. [2]

Hence solve the inequality

$$|x - 1| - 2 > -|x - 1|.$$ [2]

Solve the inequality $|4x - 1| \leq |2x + 7|$. [4]

1. Solve the inequality $\left|3x+1\right| \geq 2\left|x-2\right|$. [4]

Solve the inequality $\left|3^{-3x}-54\right| < 27$. [4]

1 Sketch on a single diagram the graphs of $y = |3x+2|$ and $y = -x+1$. Hence or otherwise, find the set of values of x which satisfy $|3x+2| < -x+1$. [5]

Given that $-4 < x < 2$ is the solution to the inequality $\left|x+a\right| < b$.
Calculate the value of a and the value of b. [3]

2 Solve the inequality $|2x+1| < 3x+2$. [4]