Nom : _____ MATH 9

Final Exam	Équations et inéquations

Le Châtelard

solution simple	solution indéterminée	solution impossible
$x = 0$ $\downarrow$ $x = 0$	$0 = 0$ $\downarrow$ $S = \mathbb{R}$	$0 = 1$ $\downarrow$ $S = \emptyset$

Exercise 1 (10 points) Solve the following equations :

	equation	solution
a)	$17x = 153$	
b)	$4x + 48 = 52$	
c)	$17 - 9.2x = 17$	
d)	$200 = 360 + 4x$	
e)	$2x + 7x = 12x - 8$	
f)	$x = x + 17$	
g)	$8x + 9 - 3x = 11 + 5x - 2$	
h)	$\frac{x - 3}{5} = \frac{x + 3}{4}$	
i)	$\frac{3}{4}x - \frac{1}{5} = \frac{2}{5}x + \frac{3}{4}$	
j)	$\frac{1}{3} - \frac{x + 1}{4} = 2x - \frac{3x - 1}{2}$	

solution simple	solution indéterminée	solution impossible
$x = 0$ or $x = \frac{0}{1}$ ↓ $x = 0$	$0 = 0$ or $x = \frac{0}{0}$ ↓ $S \subset \mathbb{R}^2$	$0 = 1$ or $x = \frac{1}{0}$ ↓ $S = \emptyset$

Exercise 2 (4 points) Solve the following systems of equations :

	system of equations	solution
a)	$\begin{cases} 2x - 3y = -10 \\ x + 4y = 6 \end{cases}$	
b)	$\begin{cases} 7x - 2y = 8 \\ 5x - 3y = 1 \end{cases}$	
c)	$\begin{cases} 7x - 5y = -2 \\ 2x + 3y = -5 \end{cases}$	
d)	$\begin{cases} 7x - 2y = -20 \\ 5x - 3y = -19 \end{cases}$	

- L'inéquation $x \leq 4$ a pour solution $S =]-\infty ; 4]$
- L'inéquation $x < 4$ a pour solution $S =]-\infty ; 4[$
- L'inéquation $x > 4$ a pour solution $S =]4 ; +\infty[$
- L'inéquation $x \geq 4$ a pour solution $S = [4 ; +\infty[$

Exercise 3 (6 points) Solve the following inequalities :

	inequality	solution
a)	$x > -5$	
b)	$-2 < x \leq 4$	
c)	$3x - 2 > 13$	
e)	$-2 - 3x \geq 2$	
g)	$2x + 5 < 3x - 7$	
i)	$\frac{x}{2} - (x - 1) \geq \frac{4 - x}{2}$	