S1 F3 : Travaux de groupe: **Equations simples**

Résoudre une équation , c'est trouver la ou les solutions qui la vérifient.

Exemples :

$3x + 7 = 8$	$5x + 3 = 4x - 7$
$3x + 7 - 7 = 8 - 7$	$5x + 3 - 4x = 4x - 7 - 4x$
$3x = 1$	$x + 3 = -7$
$3x \times \frac{1}{3} = 1 \times \frac{1}{3}$	$x + 3 - 3 = -7 - 3$
$x = \frac{1}{3}$	$x = -10$
$S = \{\frac{1}{3}\}$	$S = \{-10\}$

Exercice : Résoudre les équations

a) $5x + 7 = 2$; b) $-4x + 5 = 9$; c) $6x + 8 = -15$; d) $-16x + 8 = -3$

e) $2x + 4 = 7x - 3$; *f)* $-2x + 4 = -9x + 2$; g) $-8x + 7 = 11x + 5$;

h) $x + \frac{3}{4} = \frac{2}{3}x + 2$; i) $\frac{-3}{5}x + \frac{3}{4} = \frac{7}{10}x + 2$; j) $5(x + 4) - 3(2x - 4) = 6$;

k) $-9(2x + 4) - 3(-6x + 4) = 6$; l) $5(-4x + 1) = 3(2x + 5)$; m) $\frac{-3}{5}(x - 10) + \frac{3}{4} = \frac{3}{2}x + 5$

n) $5x + 4 - 2(3x + 1) - 2(x + 5) = 4(x + 2) - (4x + 3)$; p) $(2x - 1)(x + 4) = (x + 7)(2x + 8)$

S1 F3 : CORRECTION Travaux de groupe: **Equations simples**

Exercice : Résoudre les équations

a) $5x + 7 = 2$

$5x = -5$

$x = -1$

$S = \{-1\}$

b) $-4x + 5 = 9$

$-4x = 4$

$x = -1$

$S = \{-1\}$

c) $6x + 8 = -15$

$6x = -23$

$x = -\frac{23}{6}$

$S = \{-\frac{23}{6}\}$

d) $-16x + 8 = -3$

$-16x = -11$

$x = \frac{11}{16}$

$S = \{\frac{11}{16}\}$

e) $2x + 4 = 7x - 3$

$-5x = -7$

$x = \frac{7}{5}$

$S = \{\frac{7}{5}\}$

f) $-2x + 4 = -9x + 2$

$7x = -2$

$x = -\frac{2}{7}$

$S = \{-\frac{2}{7}\}$

g) $-8x + 7 = 11x + 5$

$-19x = -2$

$x = \frac{2}{19}$

$S = \{\frac{2}{19}\}$

h) $x + \frac{3}{4} = \frac{2}{3}x + 2$

$\frac{1}{3}x = \frac{5}{4}$

$x = \frac{5}{4} \times \frac{3}{1} = \frac{15}{4}$

$S = \{\frac{15}{4}\}$

i) $\frac{-3}{5}x + \frac{3}{4} = \frac{7}{10}x + 2$

$-\frac{6}{10}x - \frac{7}{10}x = \frac{8}{4} - \frac{3}{4}$

$-\frac{13}{10}x = \frac{5}{4}$

$x = \frac{5}{4} \times \frac{-10}{13} = -\frac{25}{26}$

$S = \{-\frac{25}{26}\}$

j) $5(x + 4) - 3(2x - 4) = 6$

$5x + 20 - 6x + 12 = 6$

$-x = -26$

$x = 26$

$S = \{26\}$

k) $-9(2x + 4) - 3(-6x + 4) = 6$

$-18x - 36 + 18x - 12 = 6$

$0x = 54$

pas de solution $S = \varnothing$

l) $5(-4x + 1) = 3(2x + 5)$

$-20x + 5 = 6x + 15$

$-26x = 10$

$x = -\frac{10}{26} = -\frac{5}{13}$

$S = \{-\frac{5}{13}\}$

m) $\frac{-3}{5}(x - 10) + \frac{3}{4} = \frac{3}{2}x + 5$

$-\frac{3}{5}x + 6 + \frac{3}{4} = \frac{3}{2}x + 5$

$-\frac{6}{10}x - \frac{15}{10}x = -\frac{4}{4} - \frac{3}{4}$

$-\frac{21}{10}x = -\frac{7}{4}$

$x = \frac{7}{4} \times \frac{10}{21} = \frac{5}{6}$

$S = \{\frac{5}{6}\}$

n) $5x + 4 - 2(3x + 1) - 2(x + 5) = 4(x + 2) - (4x + 3)$

$5x + 4 - 6x - 2 - 2x - 10 = 4x + 8 - 4x - 3$

$-3x - 8 = 5$

$-3x = 13$

$x = -\frac{13}{3}$

$S = \{-\frac{13}{3}\}$

p) $(2x - 1)(x + 4) = (x + 7)(2x + 8)$

$2x^2 + 8x - x - 4 = 2x^2 + 8x + 14x + 56$

$2x^2 + 7x - 4 = 2x^2 + 22x + 56$

$-15x = 60$

$x = -\frac{60}{15} = -4$

$S = \{-4\}$