

Ch2 Equations

du premier degré


à une inconnue



Leonhard Euler
(1707 ; 1783)

Animation PPT



Synthèse : 
distinction terme et coef

Exercices NAM P32 A - AM P18

Réponses



Sources



Exercices NAM P33 A - AM P19

Réponses



Sources



Fractions

Exercices



1) $x + 3 = 4$

2) $3x = 4$

3) $-6x = 3$

4) $5 = x - 2$

5) $4x = 0$

16) $\frac{x}{2} = 5$

17) $3x = \frac{5}{2}$

18) $-2x = \frac{6}{5}$

19) $x - \frac{4}{3} = \frac{2}{3}$

20) $x + \frac{1}{2} = 3$

31) $-2x + 5 = 4$

32) $-3x + \frac{1}{5} = 0$

33) $3x + 1 = \frac{3}{2}$

34) $\frac{-x}{7} = \frac{6}{5}$

35) $\frac{1}{4} - x = \frac{1}{2}$

6) $-7 - x = -2$

7) $-3 = 2 + x$

8) $5x - 2 = 0$

9) $3x + 5 = 0$

10) $4 - 2x = 6$

21) $\frac{3x}{2} = 9$

22) $\frac{-2x}{3} = -1$

23) $\frac{2x}{3} = \frac{1}{5}$

24) $-2x = \frac{4}{3}$

25) $\frac{3}{4}x = \frac{1}{3}$

36) $\frac{-3x}{2} = -2$

37) $\frac{-5x}{3} + 2 = 5$

38) $\frac{-x}{2} + 5 = -3$

39) $-7 = -7x + 7$

40) $\frac{x}{4} + 4 = \frac{1}{4}$

11) $-6x - 3 = 0$

12) $2 = 3 + 5x$

13) $-2 = 5 + 3x$

14) $0 = 1 - 2x$

15) $8 - 3x = 8$

26) $\frac{x}{2} - \frac{5}{3} = 0$

27) $x - \frac{5}{3} = 4$

28) $\frac{4}{7} = \frac{-2x}{5}$

29) $1 = \frac{x}{2} - \frac{1}{3}$

30) $\frac{3}{2}x + \frac{1}{3} = 0$

41) $\frac{5}{3}x = \frac{4}{5}$

42) $1 = -6x + 1$

43) $\frac{4}{7} + x = \frac{-2}{5}$

44) $\frac{-2x}{5} = \frac{5}{6}$

45) $1 = \frac{5x}{2} - \frac{2}{3}$

1) $x + 3 = 4$

$\Rightarrow x = 4 - 3$

$\Rightarrow \boxed{x = 1}$

$S = \{1\}$

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

$\Rightarrow 1 \cdot x = \frac{4}{3}$

$\Rightarrow \boxed{x = \frac{4}{3}}$

$S = \{\frac{4}{3}\}$

3) $\frac{-6x}{-6} = \frac{3}{-6}$

$\Rightarrow 1x = \frac{3}{-6}$

$\Rightarrow \boxed{x = -\frac{1}{2}}$

$S = \{-\frac{1}{2}\}$

4) $5 = x - 2$

$\Rightarrow x - 2 = 5$

$\Rightarrow x = 5 + 2$

$\Rightarrow \boxed{x = 7}$

$S = \{7\}$

5) $\frac{4x}{4} = \frac{0}{4}$

$\Rightarrow 1x = \frac{0}{4}$

$\Rightarrow \boxed{x = 0}$

$S = \{0\}$

6) $-7 - x = -2$

$\Leftrightarrow -x = -2 + 7$

$\Leftrightarrow -x = 5$

$\Rightarrow x = -5$

$S = \{-5\}$

7) $-3 = 2 + x$

$\Leftrightarrow 2 + x = -3$

$\Leftrightarrow x = -3 - 2$

$\Rightarrow x = -5$

$S = \{-5\}$

8) $5x - 2 = 0$

$5x - 2 + 2 = 0 + 2$

$\frac{5x}{5} = \frac{+2}{5}$

$\Leftrightarrow x = \frac{2}{5}$

$S = \left\{\frac{2}{5}\right\}$

9) $3x + 5 = 0$

$\Leftrightarrow 3x = -5$

$\Leftrightarrow x = \frac{-5}{3}$

$S = \left\{\frac{-5}{3}\right\}$

10) $4 - 2x = 6$

$\Leftrightarrow -2x = 6 - 4$

$\Leftrightarrow -2x = 2$

$\Leftrightarrow x = -1$

$S = \{-1\}$

11) $-6x - 3 = 0$

$\Leftrightarrow -6x = +3$

$\Leftrightarrow -6x = 3$

$\Leftrightarrow x = \frac{3}{-6}$

$S = \left\{ -\frac{1}{2} \right\}$

$x = -\frac{1}{2}$

12) $2 \ominus 3 + 5x$

$\Leftrightarrow 5x + 3 = 2$

$\Leftrightarrow 5x = 2 - 3$

$\Leftrightarrow \frac{5x}{5} = \frac{-1}{5}$

$\Leftrightarrow x = -\frac{1}{5}$

$S = \left\{ -\frac{1}{5} \right\}$

$x - 6x = 3x - \frac{1}{6}$

$x = -\frac{3}{6}$

13) $02 = 5 + 3x$

$\Leftrightarrow 3x + 5 = -2$

$\Leftrightarrow 3x = -2 - 5$

$\Leftrightarrow \frac{3x}{3} = \frac{-7}{3}$

$\Leftrightarrow x = -\frac{7}{3}$

$S = \left\{ -\frac{7}{3} \right\}$

14) $0 = 1 - 2x$

$-2x + 1 = 0$

$\Leftrightarrow -2x = 0 - 1$

$\Leftrightarrow \frac{-2x}{-2} = \frac{-1}{-2}$

$x = \frac{1}{2}$

$S = \left\{ \frac{1}{2} \right\}$

15) $8 - 3x = 8$

$\Leftrightarrow -3x = 8 - 8$

$-3x = 0$

$x = 0$ $S = \{0\}$

GOMATHS.CH

16) $\frac{x}{2} = 5$

$\Leftrightarrow \frac{x}{2} = 5 \cdot 2$

$\Leftrightarrow x = 5 \cdot 2$

$\Leftrightarrow x = 10 \quad S = \{10\}$

17) $3x = \frac{5}{2}$

$\Leftrightarrow \frac{3}{3} x = \frac{5}{2} \cdot \frac{1}{3}$

$\Leftrightarrow x = \frac{5}{6} \quad S = \left\{ \frac{5}{6} \right\}$

18) $-2x = \frac{6}{5}$

$\Leftrightarrow -2x = \frac{6}{5} \cdot \frac{-1}{2}$

$\Leftrightarrow x = \frac{-6}{10}$

$\Leftrightarrow x = \frac{-3}{5}$

$S = \left\{ \frac{-3}{5} \right\}$

19) $x - \frac{4}{3} = \frac{2}{3}$

$\Leftrightarrow x = \frac{4}{3} + \frac{2}{3}$

$\Leftrightarrow x = \frac{6}{3}$

$\Leftrightarrow x = 2$

$S = \{2\}$

20) $x + \frac{1}{2} \cdot 3 = \frac{1}{2}$

$\Leftrightarrow x = \frac{3}{2} - \frac{1}{2}$

$\Leftrightarrow x = \frac{6-1}{2}$

$\Leftrightarrow x = \frac{5}{2}$

$S = \left\{ \frac{5}{2} \right\}$

$$21) \frac{3x}{2} = 9$$

$$\frac{3x}{2} \Rightarrow x = \frac{9 \cdot 2}{3}$$

$$\Rightarrow x = 6$$

$$S = \{6\}$$

$$22) \frac{-2x}{3} = -1$$

$$\frac{-2x}{3} = -1$$

$$\frac{-2x}{3} = -1$$

$$x = \frac{3}{2}$$

$$S = \left\{ \frac{3}{2} \right\}$$

$$23) \frac{2x}{3} = \frac{1}{5} \cdot \frac{3}{2}$$

$$x = \frac{1}{5} \cdot \frac{3}{2}$$

$$x = \frac{3}{10}$$

$$S = \left\{ \frac{3}{10} \right\}$$

$$24) \frac{-2x}{-2} = \frac{4}{3} \cdot \frac{1}{-2}$$

$$x = -\frac{2}{3}$$

$$S = \left\{ -\frac{2}{3} \right\}$$

$$25) \frac{3}{4}x = \frac{1}{3} \cdot \frac{4}{3}$$

$$x = \frac{4}{9}$$

$$S = \left\{ \frac{4}{9} \right\}$$

$$\left(\frac{-1}{2} \right) \left(-2 \right) x = \frac{4}{3} \cdot \left(\frac{-1}{2} \right)$$

$$x = \frac{4}{3} \cdot \frac{-1}{2}$$

$$x = -\frac{2}{3}$$

26) $\frac{x}{2} - \frac{5}{3} = 0$

$\Rightarrow \frac{x}{2} = 0 + \frac{5}{3}$

$\Rightarrow \frac{x}{2} = \frac{5}{3}$

$\Rightarrow x = \frac{5 \cdot 2}{3}$

$\Leftrightarrow x = \frac{10}{3}$

$S = \left\{ \frac{10}{3} \right\}$

27) $x - \frac{5}{3} = 4$

$\Rightarrow x = \frac{4 \cdot 3}{1 \cdot 3} + \frac{5}{3}$

$\Rightarrow x = \frac{17}{3}$

$x = \frac{12 + 5}{3}$

$S = \left\{ \frac{17}{3} \right\}$

28) $\frac{4}{7} = \frac{-2x}{5}$

$\Rightarrow \frac{2}{5}x = -\frac{4}{7}$

$\Rightarrow x = -\frac{4}{7} \cdot \frac{5}{2}$

$\Leftrightarrow x = -\frac{10}{7}$

$S = \left\{ -\frac{10}{7} \right\}$

29) $1 = \frac{x}{2} - \frac{1}{3}$

$\Leftrightarrow -\frac{x}{2} = -\frac{1}{3} - 1$

$\Leftrightarrow -\frac{x}{2} = -\frac{4}{3}$

$\Leftrightarrow x = +\frac{4}{3} \cdot (+2)$

$\Leftrightarrow x = \frac{8}{3}$

$S = \left\{ \frac{8}{3} \right\}$

30) $\frac{3}{2}x + \frac{1}{3} = 0$

$\Rightarrow \frac{3}{2}x = 0 - \frac{1}{3}$

$\Leftrightarrow \frac{3}{2}x = -\frac{1}{3}$

$\Rightarrow x = -\frac{1}{3} \cdot \frac{2}{3}$

$\Leftrightarrow x = -\frac{2}{9}$ $S = \left\{ -\frac{2}{9} \right\}$

Activité 3 : colonne 7- NAM P32 n°A

31) $-2x + 5 = 4$

$-2x = 4 - 5$

$-2x = -1$

$x = \frac{1}{2}$

$S = \left\{ \frac{1}{2} \right\}$

32) $-3x + \frac{1}{5} = 0$

$-3x = 0 - \frac{1}{5}$

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

$x = \frac{-1}{5} \times \frac{-1}{3}$

$x = \frac{1}{15}$

$S = \left\{ \frac{1}{15} \right\}$

33) $3x + 1 = \frac{3}{2}$

$3x = \frac{3}{2} - \frac{1 \cdot 2}{2 \cdot 2}$

$1 = \frac{2}{2}$

$3x = \frac{3-2}{2}$

$3x = \frac{1}{2}$

$S = \left\{ \frac{1}{6} \right\}$

$x = \frac{1}{3} \times \frac{1}{2}$

TB!

34) $\frac{-x}{7} = \frac{6}{5}$

$-x = \frac{6}{5} \times 7$

$x = -\frac{42}{5}$

$S = \left\{ -\frac{42}{5} \right\}$

35) $\frac{1}{4} - x = \frac{1}{2}$

$-x = \frac{1}{2} - \frac{1}{4}$

$-x = \frac{2-1}{4}$

$-x = \frac{1}{4}$

$x = -\frac{1}{4}$

$S = \left\{ -\frac{1}{4} \right\}$

Activité 3 : colonne 8- NAM P32 n°A

36) $\frac{-3x}{2} = -2$

$\Leftrightarrow x = -2 \times \frac{-2}{3}$

$\Rightarrow x = \frac{4}{3}$

S = {4/3}

37) $\frac{-5x}{3} + 2 = 5$

$\Rightarrow \frac{-5}{3}x = 5 - 2$

$\Rightarrow \frac{-5}{3}x = 3$

$\Leftrightarrow x = 3 \times \frac{-3}{5}$

$\Leftrightarrow x = -9/5$

S = {-9/5}

38) $\frac{-x}{2} + 5 = -3$

$\Leftrightarrow \frac{-x}{2} = -3 - 5$

$\Leftrightarrow \frac{-x}{2} = -8$

$\Leftrightarrow x = 16$

S = {16}

39) $-7 = -7x + 7$

$\Leftrightarrow 7x = 7 + 7$

$\Leftrightarrow 7x = 14$

$x = 2$

S = {2}

40) $\frac{x}{4} + \frac{4}{1} = \frac{1}{4}$

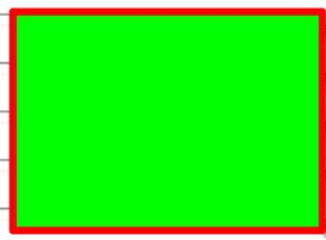
$\Leftrightarrow \frac{x}{4} = \frac{1}{4} - \frac{4 \times 4}{1 \times 4}$

S = {-15}

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

Activité 3 : colonne 8- NAM P32 n°A

36) $\frac{-3x}{2} = -2$



37) $\frac{-5x}{3} + 2 = 5$

$-\frac{5}{3}x = 5 - 2$

$\left(\frac{-3}{5}\right) \cdot \frac{5}{3}x = 3 \left(\frac{-3}{5}\right)$

$x = \frac{-9}{5}$

$S = \left\{ \frac{-9}{5} \right\}$

38) $\frac{-x}{2} + 5 = -3$

$-\frac{x}{2} = -3 - 5$

$-\frac{x}{2} = -8$

$x = 8 \cdot 2$

$S = \{16\}$

39) $-7 = -7x + 7$

$7x = 7 + 7$

$\frac{7}{7}x = \frac{14}{7}$

$x = 2$

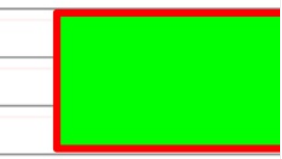
$S = \{2\}$

40) $\frac{x}{4} + 4 = \frac{1}{4}$

$\frac{x}{4} = \frac{-4 \cdot 4}{4} + \frac{1}{4}$

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

$x = -15$



$S = \{-15\}$

Activité 3 : colonne 9- NAM P32 n°A

41) $\frac{5}{3}x = \frac{4}{5}$

$$\Leftrightarrow x = \frac{4}{5} \times \frac{3}{5}$$

$$\Leftrightarrow x = \frac{12}{25}$$

$$S = \left\{ \frac{12}{25} \right\}$$

42) $1 = -6x + 1$

$$\Rightarrow 6x = 1 - 1$$

$$\Rightarrow \frac{6x}{6} = \frac{0}{6}$$

$$\Rightarrow \boxed{x = 0}$$

$$S = \{0\}$$

43) $\frac{4}{7} + x = \frac{-2}{5}$

$$\Leftrightarrow x = \frac{-2}{5} - \frac{4}{7}$$

$$\Leftrightarrow x = \frac{-34}{35}$$

$$S = \left\{ \frac{-34}{35} \right\}$$

44) $\frac{-2x}{5} = \frac{5}{6}$

$$x = \frac{5}{6} \times \frac{-5}{2}$$

$$x = \frac{-25}{12}$$

45) $1 = \frac{5x}{2} - \frac{2}{3}$

$$\frac{2}{2} \times \frac{2}{2} x = 1 + \frac{2}{3}$$

$$\frac{2}{2} \times \frac{2}{2} x = \frac{5}{3}$$

$$x = \frac{5}{3} \times \frac{2}{2}$$

$$x = \frac{10}{3}$$

$$S = \left\{ \frac{10}{3} \right\}$$

Exercices

Activité 3 : NAM P32 n°b

1) $5x + 7 = 4x + 5$

2) $-1 - 3x = 9 + 7x$

3) $2x + 6 = 5x + 15$

4) $3 + 2x = 4x - 5$

5) $-3 + 8x = 5 - 2x$

11) $3 \cdot (x - 1) = -4 \cdot (2x + 3)$

12) $2x - (3x + 4) = 5 + (3x - 7)$

13) $(-x + 3) - (7 - 4x) = 5x + 2 \cdot (x + 1)$

14) $3x - 2 \cdot (5 - 4x) = 3x + (-x + 3)$

15) $3x - (8 - x) = 0$

6) $1 - 4x = x - 4$

7) $2x + 1 = x - 5$

8) $7x - 4 = 13 + 2x$

9) $3 + 5x = 3x - 6 + 8x$

10) $3 - 2x + x = 5 - 3x + 6x - 1$

16) $x + 3 \cdot (x - 2) = 3$

17) $-(5 + x) + 3 \cdot (2x - 1) = 5 + (-x + 1)$

18) $2x - 7 = x + 3 \cdot (x - 1)$

19) $2x - 4 \cdot (x - 2) = x + 3 - (x - 2)$

20) $(7x - 4) - (4x - 2) = -(x + 5) - 6x + 4$

b) Résous les équations suivantes.

1) $5x + 7 = 4x + 5$

2) $-1 - 3x = 9 + 7x$

3) $2x + 6 = 5x + 15$

4) $3 + 2x = 4x - 5$

5) $-3 + 8x = 5 - 2x$

$$6) 1 - 4x = x - 4$$

$$-x - 4x = -4 - 1$$

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

$$x = 1 \quad S = \{1\}$$

$$7) 2x + 1 = x - 5$$

$$2x - x = -5 - 1$$

$$x = -6$$

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

$$8) 7x - 4 = 13 + 2x$$

$$7x - 2x = 13 + 4$$

$$\frac{5x}{5} = \frac{17}{5}$$

$$x = \frac{17}{5}$$

$$S = \left\{ \frac{17}{5} \right\}$$

$$9) 3 + 5x = 3x - 6 + 8x$$

$$-8x + 5x - 3x = -6 - 3$$

$$+6x = -9$$

$$x = \frac{-9}{6}$$

$$S = \left\{ -\frac{3}{2} \right\}$$

$$x = \frac{-3}{2}$$

$$10) 3 - 2x + x = 5 - 3x + 6x$$

$$-2x + x + 3x - 6x = -3 + 5 - 1$$

$$-4x = 1$$

$$x = \frac{-1}{4}$$

$$S = \left\{ -\frac{1}{4} \right\}$$

11) $3 \cdot (x - 1) = -4 \cdot (2x + 3)$

$3x - 3 = -8x - 12$

$3x + 8x = -12 + 3$

$11x = -9$

$x = \frac{-9}{11}$

$S = \left\{ \frac{-9}{11} \right\}$

12) $2x - (3x + 4) = 5 + (3x - 7)$

$2x - 3x - 4 = 5 + 3x - 7$

$2x - 3x - 3x = 4 + 5 - 7$

$\frac{-4x}{-4} = \frac{2}{-4}$

$x = \frac{-1}{2}$

$S = \left\{ \frac{-1}{2} \right\}$

13) $(-x + 3) - (7 - 4x) = 5x + 2 \cdot (x + 1)$

$-x + 3 - 7 + 4x = 5x + 2x + 2$

$-x + 4x - 5x - 2x = 2 - 3 + 7$

$\frac{-4x}{-4} = \frac{6}{-4}$

$x = \frac{-3}{2}$ $S = \left\{ \frac{-3}{2} \right\}$

14) $3x - 2 \cdot (5 - 4x) = 3x + (-x + 3)$

$3x - 10 + 8x = 3x - x + 3$

~~$3x + 3x + 8x + x = 3 + 10$~~

$9x = 13$

$x = \frac{13}{9}$

$S = \left\{ \frac{13}{9} \right\}$

15) $3x - (8 - x) = 0$

$3x - 8 + x = 0$

$3x + x = 0 + 8$

$4x = 8$

$x = 2$

$S = \{2\}$

$$16) \underline{x+3} \cdot \underline{(x-2)} = 3$$

$$x + 3x - 6 = 3$$

$$x + 3x = 3 + 6$$

$$4x = 9$$

$$x = \frac{9}{4}$$

$$S = \left\{ \frac{9}{4} \right\}$$

$$17) \underline{-(5+x)} + \underline{3 \cdot (2x-1)} = \underline{5} + \underline{(-x+1)}$$

$$-5 - x + 6x - 3 = 5 - x + 1$$

$$-x + 6x + x = 5 + 1 + 5 + 3$$

$$6x = 14$$

$$S = \left\{ \frac{7}{3} \right\} \quad x = \frac{7}{3}$$

$$18) \underline{2x-7} = \underline{x+3} \cdot \underline{(x-1)}$$

$$2x - 7 = x + 3x - 3$$

$$2x - x - 3x = 7 - 3$$

$$-2x = 4$$

$$x = -2$$

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

$$18) 2x - 7 = x + 3 \cdot (x - 1)$$

$$19) \underline{2x - 4} \cdot (x - 2) = \underline{x + 3} - (x - 2)$$

$$2x - 4x + 8 = \cancel{x} + 3 - \cancel{x} + 2$$

$$2x - 4x = -8 + 3 + 2.$$

$$-2x = -3$$

$$x = \frac{3}{2}$$

$$S = \left\{ \frac{3}{2} \right\}$$

$$20) \underline{(7x - 4)} - \underline{(4x - 2)} = \underline{-(x + 5)} - \underline{6x}$$

$$7x - 4 - 4x + 2 = -x - 5 - 6x$$

$$7x - 4x + x + 6x = 4 - 2 - 5$$

$$10x = 1$$

$$x = 0,1$$

$$S = \{0,1\}$$


$$20) (7x - 4) - (4x - 2) = -(x + 5) - 6x + 4$$



Leonhard Euler
(1707 ; 1783)

Animation PPT



Synthèse : 
distinction terme et coef

Exercices NAM P32 A - AM P18

Réponses



Sources



Exercices NAM P33 A - AM P19

Réponses



Sources



Fractions



Leonhard Euler
(1707 ; 1783)

Exercices NAM P33 A - AM P19

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Fractions

Exercices NAM P3 - AM P

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Equations particulières



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Correctif





Résolutions d'équations avec dénominateurs

a) Résous les équations suivantes.

$$1) \frac{x}{2} - 1 = \frac{x}{3} - \frac{1}{3}$$

$$2) \frac{2x}{3} + \frac{1}{4} = \frac{2}{3} - \frac{x}{2}$$

$$3) \frac{x-3}{2} - \frac{x}{3} = \frac{x-2}{3} + \frac{3}{2}$$

$$4) \frac{x}{2} + \frac{x-1}{3} = \frac{1}{2}$$

$$5) \frac{2x+3}{3} - \frac{x-6}{2} = \frac{x}{3} - \frac{1}{4}$$

$$6) \frac{x}{6} - \frac{x-1}{3} = \frac{x-2}{2}$$

$$7) \frac{2x}{3} + \frac{x-1}{4} = x$$

$$8) \frac{5x-3}{4} - \frac{x+3}{5} = 0$$

$$9) \frac{x}{2} - \frac{2x-5}{6} = \frac{1}{3}$$

$$10) \frac{2x-3}{5} = \frac{x-5}{2}$$

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