

(g) $(2x + 3)(5x^2 + x - 7)$

(h) $\left(-2x^3 - \frac{x^2}{2} + 4x - 1\right) \left(7x^3 + x^2 - \frac{3}{4}\right)$

(i) $(-x^3 - 2x + 3x^2 - 4) \left(\frac{1}{3}x - \frac{1}{2}x^3 + \frac{1}{4}x^2\right)$

[illegible]

IDENTITÉS REMARQUABLES

7 Développer, réduire et ordonner grâce aux identités remarquables :

(a) $(x + 3)^2$

(b) $(2x + 5)^2$

(c) $(7x^2 + 8)^2$

(d) $(x^5 + \frac{1}{2})^2$

(e) $\left(\frac{x}{6} + 6\right)^2$

(f) $\left(\frac{2}{3}x^4 + \frac{3}{4}\right)^2$

(g) $(x - 9)^2$

(h) $(3x - 1)^2$

(i) $(8x^3 - 5)^2$

(j) $\left(x - \frac{3}{4}\right)^2$

$$(k) \quad \left(\frac{x^6}{2} - \frac{1}{3}\right)^2$$

$$(1) \quad \left(2 - \frac{4}{3}x^5\right)^2$$

(m) $(x + 3)(x - 3)$

(n) $(2x - 5)(2x + 5)$

(o) $(5x^3 - \frac{7}{2})(5x^3 + \frac{7}{2})$

(p) $(7x^4 + 8)(8 - 7x^4)$

(q) $\left(\frac{x}{3} + \frac{9}{5}\right) \left(\frac{9}{5} - \frac{x}{3}\right)$

$$\textbf{(r)} \quad (x^9 - 9)(9 + x^9)$$

8 Développer, réduire et ordonner grâce aux identités remarquables :

(a) $(8x^2 - 5x^3)^2$

(b) $(3x^2 - \frac{x}{4})^2$

(c) $\left(\frac{3}{2}x^4 - \frac{2}{3}x^3\right)^2$

(d) $(-1 - 3x)^2$

(e) $(-1 + x)(x + 1)$

(f) $(-2 + 3x)(2 + 3x)$

(g) $(-2 + 3x)(-2 - 3x)$

(h) $\left(-1 - \frac{x^2}{9}\right) \left(-1 + \frac{x^2}{9}\right)$

9 Développer, réduire et ordonner grâce aux identités remarquables :

(a) $3(2x + 1)^2 - (x - 4)^2$

(b) $3(2x - 1)^2 - (x + 4)^2$

(c) $3(-2x - 1)^2 - (-x - 4)^2$

(d) $8x^2 - (2x + 5)(2x - 5) - (6x - 1)^2$

(e) $(x + 1)^2 - 6\left(\frac{x}{5} + 3\right)^2$

(f) $(2 - x^2)(2 + x^2) - 2x(x - \frac{1}{2})^2$

10 Développer, réduire et ordonner grâce aux identités remarquables :

(a) $(x^2 + x - 1)^2$

(b) $(3x + 2)^3$

(c) $(4x - 1)^3$

(d) $\left(x - \frac{2}{3}\right)^3$

(e) $(x^2 + 1)^3$

(f) $(3 + x^3)^3$

[illegible]

$$\begin{aligned}
& (\mathfrak{g}+x)(\mathfrak{g}-x)(\mathfrak{l}+x)(\mathfrak{l}-x) \\
(\mathfrak{q}) & (\mathfrak{g}\mathfrak{l}+x)(\mathfrak{z}+x) \quad (\mathfrak{g}) (\mathfrak{g}+x)(\mathfrak{f}-x) \quad (\mathfrak{j}) (\mathfrak{g}-x)(\mathfrak{z}-x) \\
(\mathfrak{a}) & (9+\mathfrak{z}x)(\mathfrak{z}+x)(\mathfrak{z}-x) \quad (\mathfrak{p}) (9+x)(\mathfrak{f}-x) \quad (\mathfrak{o}) \\
& (\mathfrak{f}+x)(\mathfrak{l}+x) \quad (\mathfrak{q}) (\mathfrak{l}+x)(\mathfrak{g}-x) \quad (\mathfrak{v}) \boxed{6\mathfrak{l}} (z+\mathfrak{h}+x)(z \\
& -\mathfrak{h}+x)(\mathfrak{h}-x+z)(\mathfrak{h}+x-z) \quad (\mathfrak{l}) (\mathfrak{h}\mathfrak{g}+x\mathfrak{l})(\mathfrak{h}\mathfrak{g}+x) \\
(\mathfrak{q}) & (\mathfrak{g}+x\mathfrak{l})(6-x\mathfrak{l}) \quad (\mathfrak{g}) (\mathfrak{h}\mathfrak{g}-x\mathfrak{z}+\mathfrak{g})(\mathfrak{h}\mathfrak{g}+x\mathfrak{z}-\mathfrak{g}) \quad (\mathfrak{j}) \\
& (\mathfrak{h}-x\mathfrak{z}+\mathfrak{z}\mathfrak{g})(\mathfrak{h}+x\mathfrak{z}-\mathfrak{z}\mathfrak{g}) \quad (\mathfrak{a}) (\mathfrak{l}+x+\mathfrak{z}x)(\mathfrak{l}-x-\mathfrak{z}x) \\
(\mathfrak{p}) & (\mathfrak{l}+\mathfrak{h}+x\mathfrak{z})(\mathfrak{l}-\mathfrak{h}-x\mathfrak{z}) \quad (\mathfrak{o}) (\mathfrak{h}-\mathfrak{z}+x)(\mathfrak{h}+\mathfrak{z}-x) \\
(\mathfrak{q}) & (\mathfrak{h}\mathfrak{f}\mathfrak{l}+x+x+\mathfrak{g})(\mathfrak{g})(\mathfrak{h}\mathfrak{f}\mathfrak{l}-x-x+\mathfrak{g}) \quad (\mathfrak{a}) \boxed{8\mathfrak{l}}.
\end{aligned}$$

Solutions.

ÉQUATIONS DU PREMIER DEGRÉ

20 Résoudre algébriquement les équations suivantes :

- (a) $4x - 3 = -10x + 4$
- (b) $3 - 5x = 10 - 12x$
- (c) $5(x - 3) - (1 - 2x) = 3 + 4x$
- (d) $-7 + 2(x - 3) - 3 = 3(x - 1) - 2(x + 1)$
- (e) $3(x - 2) - (1 - 2x) = 5x - (3x - 2) - 1$
- (f) $(2x - 4)(1 - 3x) = (x + 7)(5 - 6x)$
- (g) $\frac{2}{3}x - \frac{1}{5} = -2x + \frac{3}{5}$
- (h) $\frac{10}{7}x - 1 = \frac{7}{3}x$
- (i) $\frac{1}{4} - \frac{1}{3}x = \frac{1}{2}x + \frac{1}{5}$
- (j) $\frac{5}{3} - \frac{5}{2}x = \frac{1}{5} - \frac{2}{5}x$
- (k) $\frac{2}{5}x - 7 = 4 - \frac{1}{3}x$
- (l) $\frac{2}{5} + \frac{1}{4}x = 3 + x$
- (m) $\frac{2}{9}(3x + 1) = 2 - (\frac{1}{4}x + \frac{1}{3})$

- (n) $5 + \frac{2}{3}(4x + 1) + \frac{1}{2}x = 2x - \frac{3}{4} - 3(1 - \frac{5}{2}x)$
- (o) $\frac{x-2}{3} - \frac{12-x}{2} = \frac{5x-36}{4} - 1$
- (p) $\frac{2x+1}{3} - \frac{x-2}{4} - \frac{2x-3}{12} = 0$
- (q) $\frac{5x-2}{3} - \frac{2x-1}{4} = \frac{4x+6}{16}$
- (r) $\frac{1+2x}{6} - \frac{3x-1}{4} = \frac{5}{3} - \frac{1}{8}(2x + 8)$
- (s) $\frac{1-3x}{12} - \frac{2}{9}(x - 1) = \frac{7}{4} - \frac{2x+5}{6}$
- (t) $-3 - \frac{3x-1}{6} - \frac{1}{3}(x - \frac{4-3x}{4}) = -\frac{7}{3}$

ÉQUATIONS DE DEGRÉ >1

21 Résoudre algébriquement les équations suivantes :

- (a) $x^2 = 9$
- (b) $16x^2 = 25$
- (c) $4x^2 = 12x$
- (d) $4x^3 - 3x = 6x$
- (e) $x(2x - 1) = x(x + 2)$
- (f) $x^2 - 3x + 5 = 9x - 4 - 3x^2$
- (g) $(x - 1)^2 = 36$
- (h) $(3x + 5)^2 = (2x + 3)^2$
- (i) $x^4 - 9x^2 + 36 - 4x^2 = 0$
- (j) $-\frac{9}{2}x^3 = 21x^2 + \frac{49}{2}x$
- (k) $9 + 6x + x^2 = 49x^2$
- (l) $x^6 = 64$

$$\begin{aligned}
& \{\mathfrak{z}:\mathfrak{z}-\} = \mathbb{S} \quad (\mathfrak{l}) \quad \{\frac{\mathfrak{z}}{\mathfrak{l}};\frac{\mathfrak{g}}{\mathfrak{g}}-\} = \mathbb{S} \quad (\mathfrak{q}) \quad \{0;\frac{\mathfrak{z}}{\mathfrak{z}}-\} = \mathbb{S} \quad (\mathfrak{f}) \\
& \{\mathfrak{g}:\mathfrak{z}:\mathfrak{z}-:\mathfrak{g}-\} = \mathbb{S} \quad (\mathfrak{l}) \quad \{\frac{\mathfrak{g}}{\mathfrak{g}}-\:\mathfrak{z}-\} = \mathbb{S} \quad (\mathfrak{q}) \quad \{\mathfrak{l}:\mathfrak{g}-\} = \mathbb{S} \\
& (\mathfrak{g}) \quad \{\frac{\mathfrak{z}}{\mathfrak{g}}\} = \mathbb{S} \quad (\mathfrak{j}) \quad \{\mathfrak{g}:0\} = \mathbb{S} \quad (\mathfrak{a}) \quad \{\frac{\mathfrak{z}}{\mathfrak{g}}:0;\frac{\mathfrak{z}}{\mathfrak{g}}-\} = \mathbb{S} \quad (\mathfrak{p}) \\
& \{\mathfrak{g}:0\} = \mathbb{S} \quad (\mathfrak{o}) \quad \{\frac{\mathfrak{l}}{\mathfrak{g}};\frac{\mathfrak{p}}{\mathfrak{g}}-\} = \mathbb{S} \quad (\mathfrak{q}) \quad \{\mathfrak{g}:\mathfrak{g}-\} = \mathbb{S} \quad (\mathfrak{v}) \\
& \boxed{1\mathfrak{z}} \quad \{\frac{\mathfrak{g}\mathfrak{l}}{\mathfrak{g}}-\} = \mathbb{S} \quad (\mathfrak{a}) \quad \{\frac{\mathfrak{g}}{\mathfrak{g}\mathfrak{g}}-\} = \mathbb{S} \quad (\mathfrak{s}) \quad \{\frac{\mathfrak{z}}{\mathfrak{g}}-\} = \mathbb{S} \\
& (\mathfrak{x}) \quad \{\frac{\mathfrak{z}\mathfrak{z}}{\mathfrak{g}\mathfrak{l}}\} = \mathbb{S} \quad (\mathfrak{b}) \quad \{\frac{\mathfrak{z}}{\mathfrak{g}\mathfrak{l}}-\} = \mathbb{S} \quad (\mathfrak{d}) \quad \{8\} = \mathbb{S} \quad (\mathfrak{o}) \\
& \{\frac{\mathfrak{g}\mathfrak{l}}{\mathfrak{g}\mathfrak{l}\mathfrak{l}}\} = \mathbb{S} \quad (\mathfrak{u}) \quad \{\frac{\mathfrak{g}\mathfrak{g}}{\mathfrak{g}\mathfrak{g}}\} = \mathbb{S} \quad (\mathfrak{u}) \quad \{\frac{\mathfrak{g}\mathfrak{l}}{\mathfrak{g}\mathfrak{g}}-\} = \mathbb{S} \quad (\mathfrak{l}) \quad \{\mathfrak{g}\mathfrak{l}\} = \mathbb{S} \\
& (\mathfrak{q}) \quad \{\frac{\mathfrak{g}\mathfrak{g}}{\mathfrak{g}\mathfrak{g}}\} = \mathbb{S} \quad (\mathfrak{f}) \quad \{\frac{\mathfrak{g}\mathfrak{g}}{\mathfrak{g}}\} = \mathbb{S} \quad (\mathfrak{l}) \quad \{\frac{\mathfrak{g}\mathfrak{l}}{\mathfrak{g}\mathfrak{l}}-\} = \mathbb{S} \quad (\mathfrak{q}) \\
& \{\frac{\mathfrak{g}\mathfrak{l}}{\mathfrak{g}}\} = \mathbb{S} \quad (\mathfrak{g}) \quad \{\frac{\mathfrak{z}\mathfrak{l}}{\mathfrak{g}\mathfrak{l}}\} = \mathbb{S} \quad (\mathfrak{j}) \quad \{\frac{\mathfrak{g}}{\mathfrak{g}}\} = \mathbb{S} \quad (\mathfrak{a}) \quad \{\mathfrak{l}\mathfrak{l}\} = \mathbb{S} \quad (\mathfrak{p}) \\
& \{\frac{\mathfrak{g}}{\mathfrak{g}\mathfrak{l}}\} = \mathbb{S} \quad (\mathfrak{o}) \quad \{1\} = \mathbb{S} \quad (\mathfrak{q}) \quad \{\frac{\mathfrak{z}}{\mathfrak{l}}\} = \mathbb{S} \quad (\mathfrak{a}) \quad \boxed{20}.
\end{aligned}$$