1.4

1) $5\,x^2 = 2\,x$

$5\,x^2 - 2\,x = 0$

$x\,(5\,x - 2) = 0$

$x = 0 \quad \text{ou} \quad 5\,x - 2 = 0$

$x = 0 \quad \text{ou} \quad x = \frac{2}{5}$

$\mathrm{S} = \left\{0\,;\frac{2}{5}\right\}$

2) $x^2 = 36$

$x^2 - 36 = 0$

$(x + 6)\,(x - 6) = 0$

$x + 6 = 0 \quad \text{ou} \quad x - 6 = 0$

$x = -6 \quad \text{ou} \quad x = 6$

$\mathrm{S} = \{-6\,;6\}$

3) $x^2 - 3\,x - 28 = 0$

$(x + 4)\,(x - 7) = 0$

$x + 4 = 0 \quad \text{ou} \quad x - 7 = 0$

$x = -4 \quad \text{ou} \quad x = 7$

$\mathrm{S} = \{-4\,;7\}$

4) $9\,x^2 - 6\,x + 1 = 0$

$(3\,x - 1)^2 = 0$

$3\,x - 1 = 0$

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

$\mathrm{S} = \left\{\frac{1}{3}\right\}$

5) $4\,x^2 - 4\,x - 8 = 0 \qquad \big| \ :4$

$x^2 - x - 2 = 0$

$(x + 1)\,(x - 2) = 0$

$x + 1 = 0 \quad \text{ou} \quad x - 2 = 0$

$x = -1 \quad \text{ou} \quad x = 2$

$\mathrm{S} = \{-1\,;2\}$

6) $3\,x^2 + 4\,x = 0$

$x\,(3\,x + 4) = 0$

$x = 0 \quad \text{ou} \quad 3\,x + 4 = 0$

$x = 0 \quad \text{ou} \quad x = -\frac{4}{3}$

$\mathrm{S} = \left\{-\frac{4}{3}\,;0\right\}$

7) $(x+3)^2 - 7\,(x+3) = 0$

En mettant le terme $(x+3)$ en évidence, on obtient :

$(x+3)\,\big((x+3)-7\big) = 0$

$(x+3)\,(x-4) = 0$

$x+3=0 \quad \text{ou} \quad x-4=0$

$x=-3 \quad \text{ou} \quad x=4$

$\mathrm{S} = \{-3\,;4\}$

8) $2\,x^2 + 12 = 14\,x$

$2\,x^2 - 14\,x + 12 = 0 \qquad \big| \ :2$

$x^2 - 7\,x + 6 = 0$

$(x-1)\,(x-6) = 0$

$x-1=0 \quad \text{ou} \quad x-6=0$

$x=1 \quad \text{ou} \quad x=6$

$\mathrm{S} = \{1\,;6\}$

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

$x^2 - x - 6 = 0$

$(x+2)\,(x-3) = 0$

$x+2=0 \quad \text{ou} \quad x-3=0$

$x=-2 \quad \text{ou} \quad x=3$

$\mathrm{S} = \{-2\,;3\}$