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3A
18/1/19

Equation produit

P17 série 8

15/15 Bravo !

16) $x^2 = 5x$

$x^2 - 5x = 0$

$x.(x-5) = 0$

$x = 0 \quad x - 5 = 0$

$x = 5$

$Sol = \{0 ; 5\}$ ✓

17) $x^2 - 8x = -16$

$x^2 - 8x + 16 = 0$

$(x-4)^2 = 0$

$(x-4) = 0$

$x = 4$

$Sol = \{4\}$ ✓

18) $x^2 - 24 = 25$

$x^2 - 24 - 25 = 0$

$x^2 - 49 = 0$

$(x+7).(x-7) = 0$

$x + 7 = 0 \quad x - 7 = 0$

$x = -7 \quad x = 7$

$Sol = \{-7 ; 7\}$ ✓

19) $4x^2 - 5 = 0$

$(2x + \sqrt{5}).(2x - \sqrt{5}) = 0$

$2x + \sqrt{5} = 0 \quad 2x - \sqrt{5} = 0$

$2x = -\sqrt{5} \quad 2x = \sqrt{5}$

$x = \frac{-\sqrt{5}}{2} \quad x = \frac{\sqrt{5}}{2}$

$Sol = \left\{-\frac{\sqrt{5}}{2} ; \frac{\sqrt{5}}{2}\right\}$ ✓

20) $x^2 + 9 = 0$

imposible

$Sol = \{\ \}$

✓

21) $(2x-3)^2 - 4 = 0$

$(2x-3+2).(2x-3-2) = 0$

$(2x-1).(2x-5) = 0$

$2x-1=0 \qquad 2x-5=0$

$2x = 1 \qquad 2x = 5$

$x = \frac{1}{2} \qquad x = \frac{5}{2}$

$Sol\left\{\frac{1}{2}; \frac{5}{2}\right\}$

✓

22) $x^2 - (3x-5)^2 = 0$

$(3x-5+x).(3x-5-x) = 0$

$(4x-5).(2x-5) = 0$

$4x-5=0 \qquad 2x-5=0$

$4x = 5 \qquad 2x = 5$

$x = \frac{5}{4} \qquad x = \frac{5}{2}$

$Sol = \left\{\frac{5}{4}; \frac{5}{2}\right\}$

✓

23) $x^3 - x = 2x^2 - 2$

$x.(x^2-1) = 2.(x^2-1)$

$x.(x^2-1) - 2.(x^2-1) = 0$

$(x^2-1).(x-2) = 0$

$(x+1).(x-1).(x-2) = 0$

$x+1=0 \qquad x-1=0 \qquad x-2=0$

$x = -1 \qquad x = 1 \qquad 0 = 2$

$Sol = \{-1; 1; 2\}$

✓

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24) $2.(x-1) = 5.(x-1)$
$2.(x-1) - 5.(x-1) = 0$
$(x-1).(2-5) = 0$
$(x-1).(-3) = 0$
$x-1 = 0$
$x = 1$
$Sol = \{1\}$ ✓

25) $x.(x-5) = x$
$x^2 - 5x = x$
$x^2 - 5x - x = 0$
$x^2 - 6x = 0$
$x.(x-6) = 0$
$x = 0 \quad x-6 = 0$
$x = 6$
$Sol = \{0; 6\}$ ✓

26) $2x^2 = (2x+1).(x-2)$
$2x^2 = 2x^2 - 3x - 2$
$2x^2 - 2x^2 + 3x + 2 = 0$
$3x + 2 = 0$
$3x = -2$
$x = \frac{-2}{3}$
$Sol \left\{\frac{-2}{3}\right\}$ ✓

27) $5 + 3x^2 = (5+3x).x$
$5 + 3x^2 = 5x + 3x^2$
$5 + 3x^2 - 5x - 3x^2 = 0$
$5 - 5x = 0$
$-5x = -5$
$x = \frac{-5}{-5}$
$x = 1$
$Sol = \{1\}$ ✓

28) $2x^2 + 25 = x^2 + 10x$

$2x^2 + 25 - x^2 - 10x = 0$

$x^2 + 25 - 10x = 0$

$(x-5)^2 = 0$

$(x-5) = 0$

$x = 5$

$Sol = \{5\}$ ✓

29) $4x^2 - x = 16x^2 - 1$

$x.(4x-1) = (4x+1).(4x-1)$ ✓ TB

$x.(4x-1) - (4x+1).(4x-1) = 0$

$(4x-1).(x-(4x+1) = 0$

$(4x-1).(x-4x-1) = 0$

$(4x-1).(-3x-1) = 0$

$Sol = \{-\frac{1}{3}; \frac{1}{4}\}$

$4x - 1 = 0$

$4x = 1$

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

$-3x - 1 = 0$

$-3x = 1$

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

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

30) $x^2 + x^3 + x = 3x^2$

$x^2 + x^3 + x - 3x^2 = 0$

$-2x^2 + x^3 + x = 0$

$x.(-2x + x^2 + 1) = 0$

$x.(x-1)^2 = 0$

$x = 0$ $(x-1)^2 = 0$

$(x-1) = 0$

$x = 1$

$Sol\{0; 1\}$ ✓