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09/11/11 - ①

57 a) $P(x) = 2x^5 - 3x^4 + 7x^3 - 2x^2 + 3x - 6$

$-Q(x) = \quad -3x^4 + 2x^3 - 5x^2 + 7x + 1$

$P(x) - Q(x) = 2x^5 - 6x^4 + 9x^3 - 7x^2 + 10x - 5$

$\times S(x) = 2x + 3$

$+6x^5 - 18x^4 + 27x^3 - 21x^2 + 30x - 15$

$+4x^6 - 12x^5 + 18x^4 - 14x^3 + 20x^2 - 10x$

$+4x^6 - 6x^5 \;/\; +13x^3 - x^2 + 20x - 15$

59 c)

$7x^5 + 4x^4 + 3x^3 - 5x^2 + 2x - 1 \quad | \; x^2 + x$

$-7x^5 - 7x^4$

$/ \; -3x^4 + 3x^3 - 5x^2 + 2x - 1$

$+3x^4 + 3x^3$

$/ \; 6x^3 - 5x^2 + 2x - 1$

$-6x^3 - 6x^2$

$/ \; -11x^2 + 2x - 1$

$+11x^2 + 11x$

$/ \; 13x - 1$

$7x^3 - 3x^2 + 6x - 11$

60 a) $(3x+2)^2 = 9x^2 + 4 + 12x$

60 b) $(3x-2)^2 = 9x^2 + 4 - 12x$

60 e) $(2x+7) \cdot (2x-7) = 4x^2 - 49$

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

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61b) $(2y-7)^2 = 4y^2 + 49 - 28y$

61c) $(-y-8)^2 = y^2 + 64 + 16y$

↳ $(-y-8)\cdot(-y-8) = y^2 + 8y + 8y + 8^2 = y^2 + 8^2 + 16y$

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62a)

$(2x+3)^2 = 4x^2 + 12x + 9$

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66a)

$(x+4)^2 + x^2 = x^2 + 16 + 8x + x^2 = 2x^2 + 8x + 16$

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67a) $(x^2 - 16) = (x+4)\cdot(x-4)$

67d) $x^2 - 4x + 4 = (x-2)^2$

68a) $[(3x-y)+4]\cdot[(3x-y)-4] = (3x-y)^2 - 4^2$

69a) $3x^2 - 4x = x(3x-4)$

69b) $(x+1) + 3(x+1) = (x+1) \cdot (1+3) = (x+1) \cdot 4$

70a) $7x^2 - 14x + 7 = 7(x^2 - 2x + 1) = 7 \cdot (x-1)^2$

70b) $16x^2 + 64x + 64 = 16(x^2 + 4x + 4) = 16 \cdot (x+2)^2$

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09 11 11 (3)

70c) $(2x+4)\cdot(x-2) = 2\cdot(x+2)\cdot(x-2) = 2(x^2-2^2)$

70d) $(x-5)\cdot(x^2+5x) = (x-5)\cdot x(x+5) = x\cdot(x^2-5^2)$

71) $\dfrac{(y^4-y^3)\cdot(x^2-2x+1)}{xy^2(x-1)} = \dfrac{y^2(y^2-y)\cdot(x-1)^2}{xy^2(x-1)} =$

$= \dfrac{(y^2-y)\cdot(x-1)}{x} = \dfrac{y(y-1)\cdot(x-1)}{x}$

72a) $\dfrac{x^2+2x+1}{x(x+1)} = \dfrac{(x+1)^2}{x(x+1)} = \dfrac{x+1}{x}$

72b) $\dfrac{x^2(x^2-4)}{x(x-2)} = \dfrac{x^2\cdot(x+2)\cdot(x-2)}{x\cdot(x-2)} = x\cdot(x+2)$

73a) $\dfrac{x^3(x^2-16)}{x(x+4)} = \dfrac{x^2(x+4)\cdot(x-4)}{x(x+4)} = x^2(x-4)$

73b) $\dfrac{x(2x^2-16x+32)}{(x^2-16)} = \dfrac{2x(x^2-8x+16)}{(x^2-16)} = \dfrac{2x(x-4)^2}{(x+4)(x-4)} =$

$= \dfrac{2x(x-4)}{(x+4)}$

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73 c) $\dfrac{18x^4 - 36x^2 + 18}{9x^2(x-1)^2} = \dfrac{18(x^4 - 2x^2 + 1)}{9x^2(x-1)^2} =$

$= \dfrac{18(x^2-1)^2}{9x^2(x-1)^2} = \dfrac{18[(x+1)\cdot(x-1)]^2}{9x^2(x-1)^2} =$

$\dfrac{18(x+1)^2 \cdot (x-1)^2}{9x^2(x-1)^2} = \dfrac{2(x+1)^2}{x^2}$

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77 d)

$187 = 13^2 + 18$

$187 = 13^2 + 4^2 + 2$

$185 = 13^2 + 4^2$

$x^2 = 13^2 + 4^2$

$x^2 = 185$

$x = \sqrt{185}$

$y^2 = (\sqrt{185})^2 + 1^2$

$y^2 = 185 + 1 = 186$

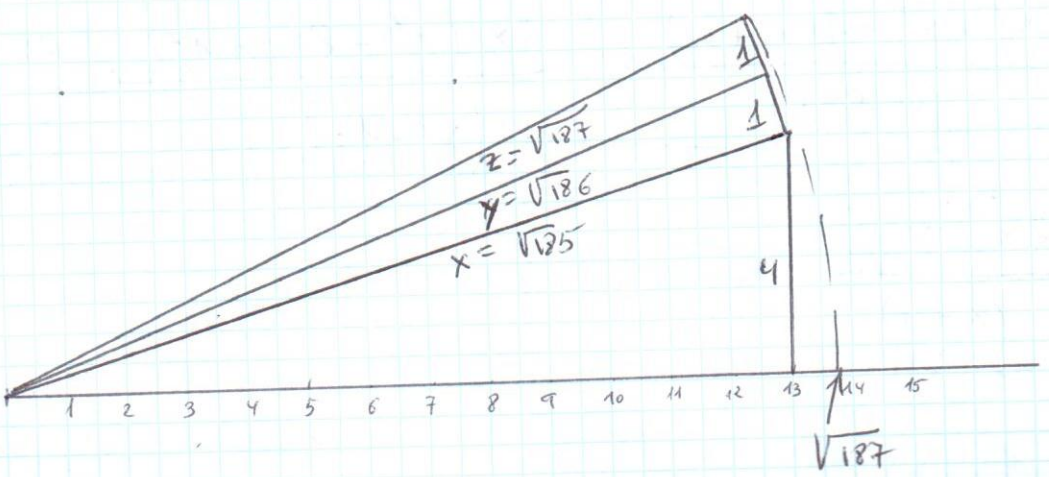
$y = \sqrt{186}$

$z^2 = (\sqrt{186})^2 + 1^2$

$z^2 = 186 + 1$

$z^2 = 187$

$z = \sqrt{187}$



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715) $4'6 \cdot 10^{11} + x = 2'1 \cdot 10^{4} \;//\; x = 2'1 \cdot 10^{4} - 4'6 \cdot 10^{11} =$

$= 0'000000021 \cdot 10^{11} - 4'6 \cdot 10^{11} = -4'599999979 \cdot 10^{11}$

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655) $\left(-45\right)^{15} \cdot \left[\left(-15\right)^{3}\right]^{-6} = \left(-3^{2} \cdot 5\right)^{15} \cdot \left(-3 \cdot 5\right)^{-18} =$

$= \dfrac{-3^{30} \cdot 5^{15}}{\left(-3 \cdot 5\right)^{18}} = \dfrac{-3^{30} \cdot 5^{15}}{-3^{18} \cdot 5^{18}} = 3^{12} \cdot 5^{-3}$