

①

a) $x^4 \cdot x^6 \cdot x = x^{11}$

b) $2x^2 \cdot 3x^3 \cdot 2x = 12x^6$

c) $\frac{x^4 \cdot x^3 \cdot x^2}{x^9} = \frac{x^9}{x^9}$

d) $(3x^2)^3 = 9x^6$

e) $\sqrt{x} \cdot \sqrt{x} = \sqrt{x^2}$

②

a) $15x - 2 = 12x + 9$

$$15x - 12x = 9 + 2$$

$$3x = 11$$

$$\underline{\underline{x = \frac{11}{3}}}$$

b)

$$3(7x - 1) = 6(x + 3)$$

$$21x - 3 = 6x + 18$$

$$21x - 6x = 18 + 3$$

$$15x = 21$$

$$\underline{\underline{x = \frac{21}{15}}}$$

③

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$$c) \quad \frac{5x+3}{4} = \frac{2x-1}{9} \quad | \cdot 36$$

$$\cancel{36}^9 \cdot \frac{5x+3}{4} = \cancel{36}_4 \cdot \frac{2x-1}{9}$$

$$9(5x+3) = 4(2x-1)$$

$$45x + 27 = 8x - 4$$

$$45x - 8x = -4 - 27$$

$$37x = -31$$

$$x = \underline{\underline{\left(-\frac{31}{37}\right)}}$$

③

$$a) \quad x^2 + 10x + 21 = 0$$

$$(x+7)(x+3) = 0$$

$$x+7=0$$

$$x = \underline{\underline{-7}}$$

$$x+3=0$$

$$x = \underline{\underline{-3}}$$

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

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

$$(x-1) = 0$$

$$x = \underline{\underline{1}}$$

$$(x-2) = 0$$

$$x = \underline{\underline{2}}$$

c) $x^2 + 12x + 20 = 0$

$$(x+10)(x+2) = 0$$

$$x+10 = 0$$

$$x = \underline{\underline{-10}}$$

$$x+2 = 0$$

$$x = \underline{\underline{-2}}$$

d)

$$x^2 - 64 = 0$$

$$x^2 = 64$$

$$x = \sqrt{64}$$

$$x = \underline{\underline{8}} \quad x = \underline{\underline{-8}}$$

e) $2x^2 + 9x + 10 = 0$

$$(2x+5)(x+2) = 0$$

$$2x+5 = 0$$

$$2x = -5$$

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

$$x+2 = 0$$

$$x = \underline{\underline{-2}}$$

(4)

(5)

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(4)

$$14x^2 + 3x = 11$$

$$14x^2 + 3x - 11 = 0$$

$$x = \frac{-3 \pm \sqrt{3^2 - 4 \cdot 14 \cdot (-11)}}{28}$$

$$x = \frac{-3 \pm \sqrt{9 + 616}}{28}$$

$$x = \frac{-3 \pm \sqrt{625}}{28}$$

$$x = \frac{-3 \pm 25}{28}$$

$$x = \underline{\underline{(-2,67)}}$$

$$x = \underline{\underline{1,67}}$$

(5)

$$2(5x + 3y) = 39$$

$$3(8x - 2y) = 42$$

$$10x + 6y = 39$$

$$* \quad 24x - 6y = 42$$

$$\underline{\underline{14x = 81}}$$

$$34x = 204$$

$$x = \underline{\underline{6}}$$

$$(5 \cdot 6) + 3y = 39$$

$$30 + 3y = 39$$

$$3y = 39 - 30$$

$$3y = 9$$

$$\underline{\underline{y = 3}}$$

⑥

$$5(2x^2 - y^2) - x^2(x^2 - y) - x^2y - x^4 =$$

$$= 10x^2 - 5y^2 - x^4 + x^2y - \cancel{x^2y} - x^4 = \underline{\underline{10x^2 - 5y^2 - 2x^4}}$$

⑦

$$a^2 + b^2 = c^2$$

$$c^2 = 4^2 + 7^2$$

$$c^2 = 16 + 49$$

$$c^2 = 65$$

$$c = \sqrt{65}$$

$$YZ = \sqrt{65}$$

$$I) \quad \sin \alpha = \frac{4}{\sqrt{65}}$$

$$\cos \alpha = \frac{7}{\sqrt{65}}$$

$$\tan \alpha = \frac{4}{7}$$

$$II) \quad \sin \beta = \frac{7}{\sqrt{65}}$$

$$\cos \beta = \frac{4}{\sqrt{65}}$$

$$\tan \beta = \frac{7}{4}$$

Bartosz Malinowski

2005342

31.11.2020

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1) $\sqrt[3]{x} = \frac{1}{3x} + \frac{1}{3x} + \frac{1}{3x} + \dots$