

Сворачивание кубов

$$1) 28x^3 + 3x^2 + 3x + 1 = 0$$

$$27x^3 + x^3 + 3x^2 + 3x + 1 = 0$$

$$x^3 + 3x^2 + 3x + 1 + 27x^3 = 0$$

$$(x+1)^3 + 27x^3 = 0$$

$$((x+1) + 3x)((x+1)^2 - (x+1)3x + 9x^2)$$

$$(4x+1)(7x^2 - 3x + 1)$$

$$4x+1=0 \text{ или } 7x^2 - 3x + 1 = 0$$

$$4x = -1$$

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

$$7x^2 - 3x + 1 = 0$$

$$d = 9 - 28 = -19 \text{ корней нет}$$

ответ: $-\frac{1}{4}$

$$2) 126x^3 - 3x^2 + 3x - 1 = 0 \text{ дз}$$

$$(a+b)^3 = a^3 + 3a^2b + 3b^2a + b^3$$

$$125x^3 + x^3 - 3x^2 + 3x - 1 = 0$$

$$125x^3 + (x-1)^3 = 0$$

$$(5x + (x-1))(25x^2 - 5x(x-1) + (x-1)^2)$$

$$(6x-1) \text{ или } (21x^2 + 3x + 1) = 0$$

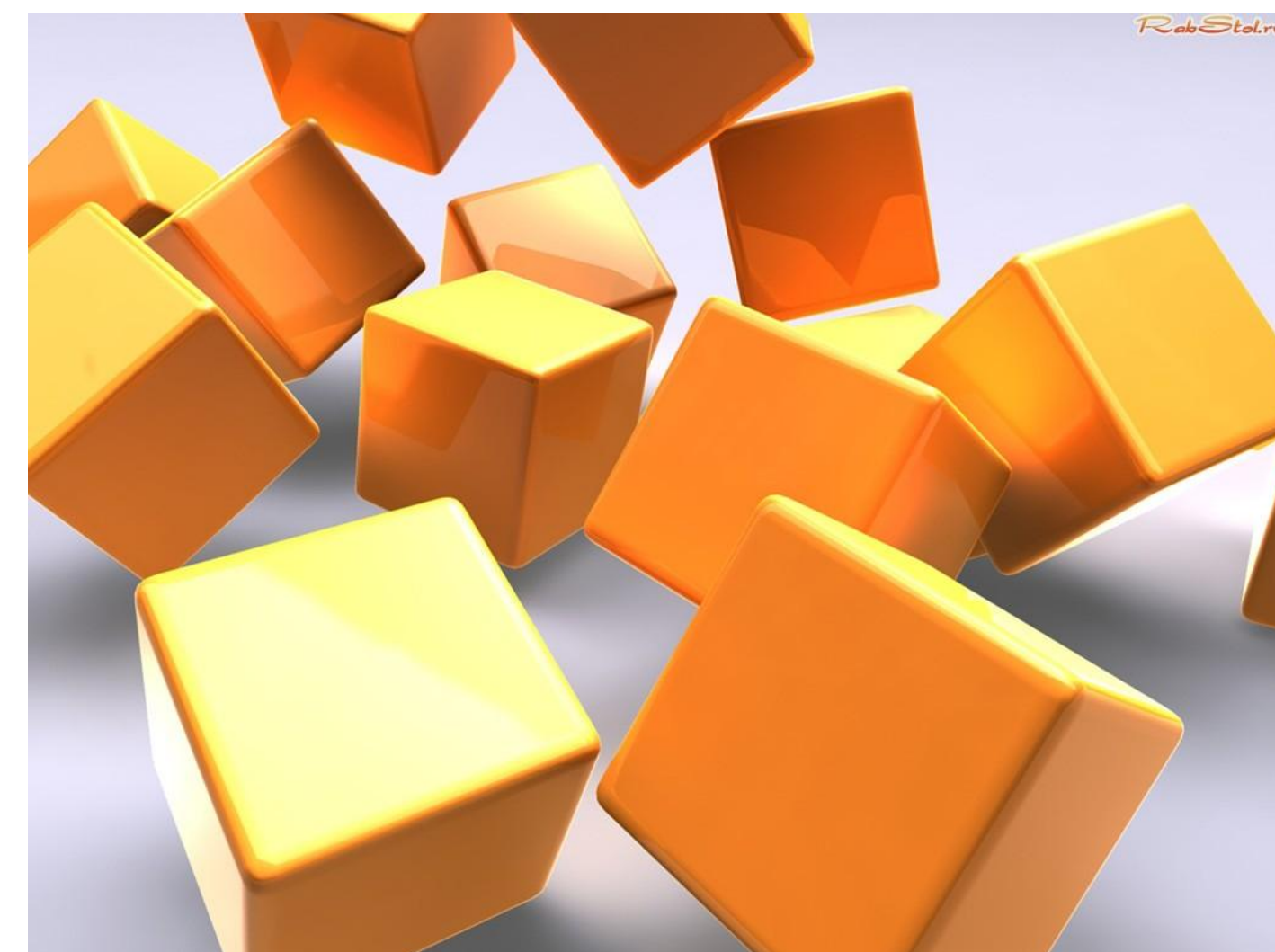
$$x = \frac{1}{6}$$

$$(21x^2 + 3x + 1) = 0$$

$$d = 9 - 84 = -75$$

корней нет

ответ: $\frac{1}{6}$



$$a^3 + b^3 = (a+b)(a^2 - ab + b^2)$$