

Использование Бинома Ньютона

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

$$2) x^4 + (x - 1)^4 = 17$$

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$$t = x - 1/2$$

$$(t + 1/2)^4 + (t - 1/2)^4 = 17$$

$$t^4 + 4t^3 \cdot 1/2 + 6t^2 \cdot 1/4 + 4t \cdot 1/8 + 1/16 + t^4 -$$

$$4t^3 \cdot 1/2 + 6t^2 \cdot 1/4 - 4t \cdot 1/8 + 1/16 = 17$$

$$2t^4 + 12t^2 \cdot 1/4 + 2/16 = 17$$

$$2t^4 + 3t^2 + 1/8 - 17 = 0 \quad | \cdot 8$$

$$16t^4 + 24t^2 - 135 = 0$$

$$y = t^2$$

$$16y^2 + 24y - 135 = 0$$

$$D/4 = 144 + 16 \cdot 135 = 144 + 2160 = 2304$$

$$y_1 = (-12 + 48) / 16 = 36 / 16 = 9/4$$

$$y_2 = (-12 - 48) / 16 = -60 / 16 = -15/4$$

$$t^2 = 9/4$$

$$t = \pm 3/2$$

$$x - 1/2 = 3/2$$

$$x_1 = 2$$

$$x - 1/2 = -3/2$$

$$x_2 = -1$$

Ответ: 2; -1

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

$$t = x + 1$$

$$(t + 1)^3 + (t - 1)^3 = 28$$

$$t^3 + 3t^2 + 3t + 1 + t^3 - 3t^2 + 3t - 1 = 28$$

$$2t^3 + 6t - 28 = 0$$

$$t_1 = 2$$

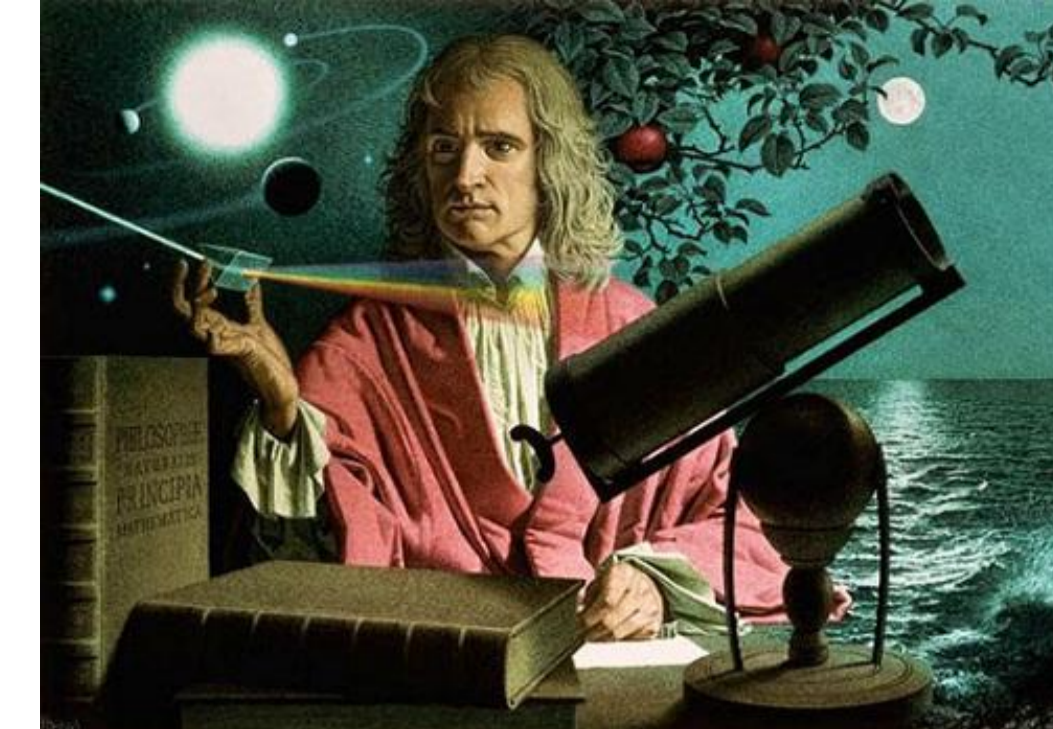
$$2x^2 + 4x + 14 = 0 \quad | / 2$$

$$x^2 + 2x + 7 = 0$$

корней нет

$$x + 1 = 2$$

$$x = 1$$



	2	0	6	-28
2	2	4	14	0

$$\sqrt{2304} = 48$$

$$\begin{array}{r} 88 \\ 8 \end{array} \left| \begin{array}{r} 2304 \\ -16 \\ \hline 704 \\ -704 \\ \hline 0 \end{array} \right.$$