

$$\begin{aligned} \cos^4 x + \cos^2 x &= 1 + \cos 2x - 2\sin^2 2x \\ \cos^4 x + \cos^2 x &= \cos 2x + \cos 4x \\ \cos^4 x + \cos^2 x &= 2\cos(3x)\cos(x) \end{aligned}$$

$$\begin{aligned} 2\cos(3x)\cos(x) &= 2 \\ \cos^4 x &= 1 \\ \cos x &= \pm 1 \\ x_1 &= 2pk \\ x_2 &= p + 2pn \\ 2\cos(6pk)\cos(2pk) &= 2 \text{ true} \\ 2\cos(3p+6pn)\cos(p+2pn) &= 2 \text{ true} \\ \text{Ответ: } &pt \end{aligned}$$

$$\cos^4 x + \cos^2 x \geq 2$$

$$-2 \leq 2\cos(3x)\cos(x) \leq 2$$

$$\begin{aligned} 2\cos(3x)\cos(x) &= 2 \\ \cos^4 x + \cos^2 x &= 2 \end{aligned}$$

$$a + \frac{1}{a} = 2$$

$$\begin{aligned} (a^2 - 2a + 1)/a &= 0 \\ D/4 &= 1 - 1 = 0 \\ x &= 1 \\ (a-1)^2/a &= 0 \\ a &= 1 \end{aligned}$$

$$\begin{aligned} f(x) &= \cos 2x + \cos 4x = 2\cos^2 2x + \cos 2x - 1 \\ \cos 2x &= t, \quad -1 \leq t \leq 1 \\ f(t) &= 2t^2 + t - 1 \\ t &= -b/2a = -1/4 \\ f(-1/4) &= 1/8 - 1/4 - 1 = -9/8 \\ f(1) &= 2 \\ f(-1) &= 0 \end{aligned}$$

