Úloha 92

Podmínky řešitelnosti:

$$\left\{\left(\alpha<\frac{\pi}{2}\right)\wedge\left(\frac{1}{3}t_b<\frac{2}{3}t_a\le\frac{t_b}{6\sin\alpha}\left[3+\sqrt{8\cos^2\alpha+1}\right]\right)\right\}\vee\left[\left(\alpha=\frac{\pi}{2}\right)\wedge\left(\frac{1}{3}t_b<\frac{2}{3}t_a<\frac{2}{3}t_b\right)\right]\vee$$
$$\vee\left\{\left(\frac{\pi}{2}<\alpha\right)\wedge\left(\frac{t_b}{6\sin\alpha}\left[3-\sqrt{8\cos^2\alpha+1}\right]\le\frac{2}{3}t_a<\frac{2}{3}t_b\right)\right\}$$

Počet řešení:

1, je-li

$$\left\{\left(\alpha<\frac{\pi}{2}\right)\wedge\left[\left(\frac{2}{3}t_a=\frac{t_b}{6\sin\alpha}\left[3+\sqrt{8\cos^2\alpha+1}\right]\right)\vee\left(\frac{1}{3}t_b<\frac{2}{3}t_a<\frac{2}{3}t_b\right)\right]\right\}\vee\left\{\left(\alpha=\frac{\pi}{2}\right)\wedge\left(\frac{1}{3}t_b<\frac{2}{3}t_a<\frac{2}{3}t_b\right)\right\}\vee$$
$$\vee\left\{\left(\frac{\pi}{2}<\alpha\right)\wedge\left[\left(\frac{1}{3}t_b<\frac{2}{3}t_a<\frac{2}{3}t_b\right)\vee\left(\frac{2}{3}t_a=\frac{t_b}{6\sin\alpha}\left[3-\sqrt{8\cos^2\alpha+1}\right]\right)\right]\right\}$$

2, je-li

$$\left\{\left(\alpha<\frac{\pi}{2}\right)\wedge\left(\frac{2}{3}t_b<\frac{2}{3}t_a<\frac{t_b}{6\sin\alpha}\left[3+\sqrt{8\cos^2\alpha+1}\right]\right)\right\}\vee$$
$$\vee\left\{\left(\frac{\pi}{2}<\alpha\right)\wedge\left(\frac{t_b}{6\sin\alpha}\left[3-\sqrt{8\cos^2\alpha+1}\right]<\frac{2}{3}t_a<\frac{2}{3}t_b\right)\right\}$$