

zad 40.9

ROZWIĄZANIE

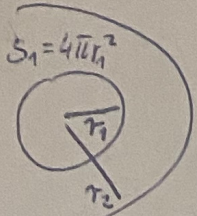
DANE

$$r_1 = 5 \text{ m}$$

$$r_2 = 8 \text{ m}$$

SZUKANE

$$\frac{J_1}{J_2} = ?$$



$$J = \frac{E}{\Delta S \cdot \Delta t}$$

$$P = \frac{E}{\Delta t}$$

$$J = \frac{P}{\Delta S}$$

$$S_1 = 4\pi r_1^2$$

$$S_2 = 4\pi r_2^2$$

$$\begin{cases} J_1 = \frac{P}{4\pi r_1^2} \\ J_2 = \frac{P}{4\pi r_2^2} \end{cases}$$

$$\frac{J_1}{J_2} = \frac{\frac{P}{4\pi r_1^2}}{\frac{P}{4\pi r_2^2}} = \left(\frac{r_2}{r_1}\right)^2$$

$$\frac{J_1}{J_2} = \left(\frac{8}{5}\right)^2 = \frac{64}{25} = 2,56$$

Odp.: 2,56

ZAD. 41.3

DANE

$$v_0 = 4 \frac{\text{m}}{\text{s}}$$

$$v_2 = 0 \frac{\text{m}}{\text{s}}$$

$$v = 340 \frac{\text{m}}{\text{s}}$$

$$f' = 5868 \text{ Hz}$$

SZUKANE

$$f = ?$$

ROZWIĄZANIE

$$f' = f \cdot \frac{v + v_0}{v}$$

$$f = f' \cdot \frac{v}{v + v_0}$$

$$f = 5868 \cdot \frac{340}{340 + 4} \approx 5800 \text{ [Hz]}$$

Odp.: 5800 Hz