

We have the distance between ships after 4 hours trip:

$$h^2 = 900 + (v_A \cdot t)^2 + 400 + (v_B \cdot t)^2 = 1300 + (v_A \cdot t)^2 + (v_B \cdot t)^2$$

As we know that $v_A = 30 \left(\frac{km}{h} \right)$ and $v_B = 20 \left(\frac{km}{h} \right)$, then we have:

$$h^2 = 1300 + (30 \cdot 4)^2 + (20 \cdot 4)^2 = 22100 \Rightarrow$$

$$\Rightarrow h = \sqrt{22100} \approx 148.66 \text{ (km)}$$

This distance will change with speed:

$$2h \frac{dh}{dt} = 2 \cdot v_A^2 \cdot t + 2 \cdot v_B^2 \cdot t \Rightarrow$$

$$\Rightarrow \frac{dh}{dt} = \frac{2 \cdot v_A^2 \cdot t + 2 \cdot v_B^2 \cdot t}{2h} = \frac{(v_A^2 + v_B^2) \cdot t}{h} = \frac{(900 + 400) \cdot 4}{\sqrt{22100}} \approx 35 \left(\frac{km}{h} \right).$$

Answer: 35 km per hour.