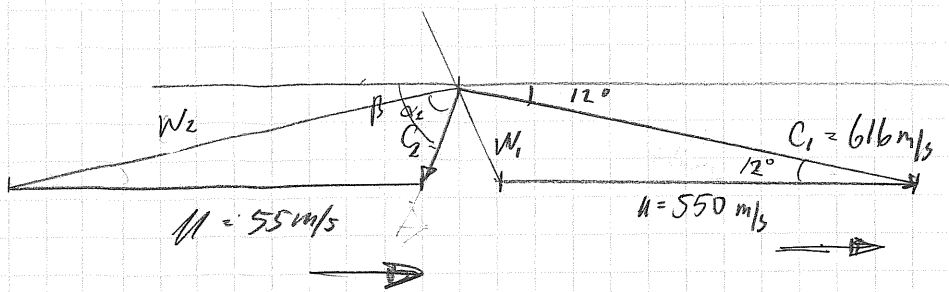
10

10.1 $C_2 = \sqrt{2000 \cdot 190} = 616 \text{ m/s}$



$$W_1 = \sqrt{C_1^2 + u^2 - 2 \cdot C \cdot u \cdot \cos(12)}$$

10.2 $W_1 = \sqrt{616^2 + 550^2 - 2 \cdot 616 \cdot 550 \cdot \cos(12)} = \underline{138,4 \text{ m/s}}$

10.3

$$\frac{\sin(\alpha_2)}{550} = \frac{\sin 12}{138,4} \Rightarrow \sin \alpha_2 = \frac{\sin 12}{138,5} \cdot 550 \Rightarrow$$

$$\alpha_2 = 55,7°$$

$$\beta = \alpha_2 + 12° = 55,7 + 12 = \underline{67,7°}$$