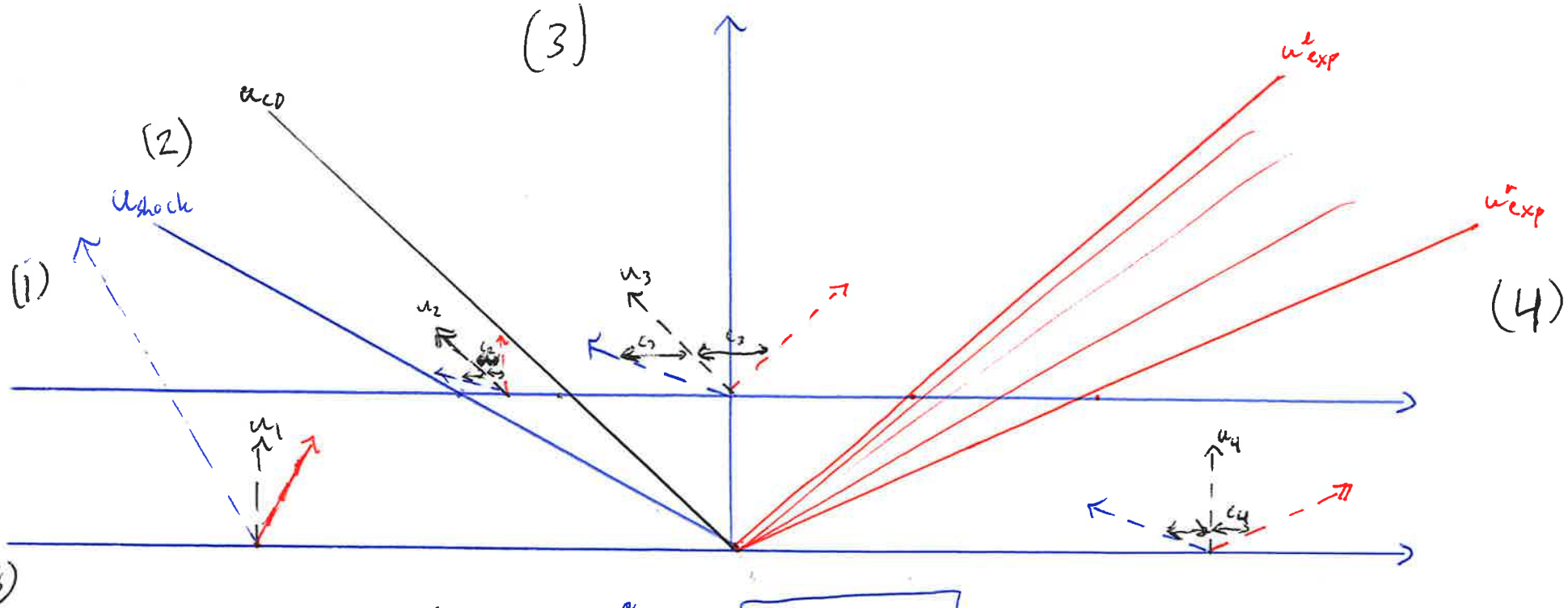
a)



$u_1 = 0 \quad c_1 = 338$

$u_2 = -474 \quad c_2 = 456$

$u_3 = -474 \quad c_3 = 973$

$u_4 = 0 \quad c_4 = 1067$

$$u_{shock} = -\sqrt{\frac{P_2 - P_1}{\frac{1}{\rho_2} - \frac{1}{\rho_1}} \cdot \frac{1}{\rho_1}} = -726$$

$u_{CD} = u_2 = -474$ m/s

$u^+_{exp} = u_3 + c_3 = 499$ m/s

$u^-_{exp} = u_4 + c_4 = 1067$ m/s

$P_2 = 5.2$ Bar

$P_1 = 1$ Bar

$\rho_2 = 3.5$ kg/m³

$\rho_1 = 1.225$ kg/m³

$P_4 = 10$ Bar

$\rho_4 = 1.225$

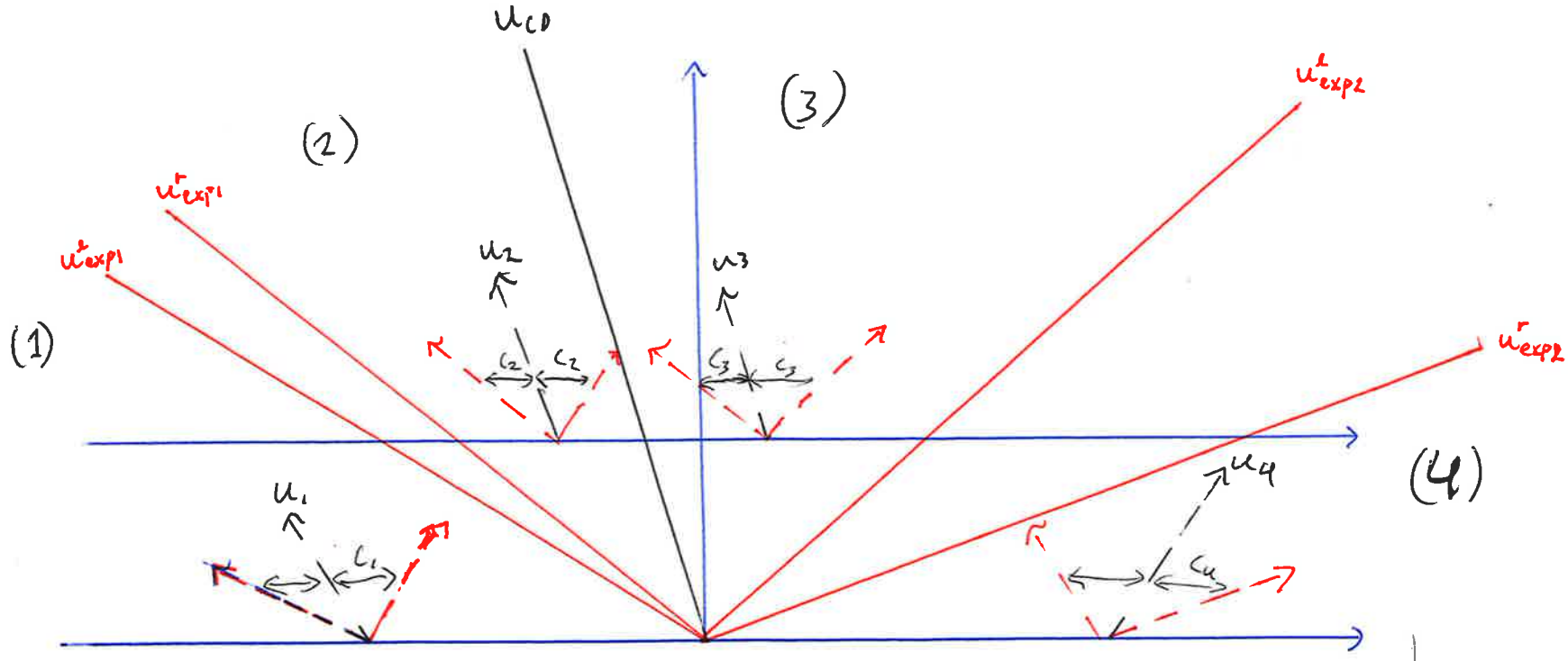
Measured at $t = 0{,}617$

moving sheet = dist/t

$u_{shock} = -727$ $\quad u^+_{exp} = 496$

$u_{CD} = -473$ $\quad u^-_{exp} = 1070$

b)



$u_1 = -100$ m/s $c_1 = 339$ m/s $\rho_1 = 1{,}225$ kg/m³ $p_1 = 1$ Bar

$u_2 = -67$ m/s $c_2 = 335$ m/s

$u_3 = -67$ m/s $c_3 = 419$ m/s

$u_4 = 200$ m/s $c_4 = 475$ m/s $\rho_4 = 1{,}225$ kg/m³ $p_4 = 2$ Bar

	calculated:	Measured:
u^l_{exp1}	$= u_1 - c_1 = -439$	-440
u^r_{exp1}	$= u_2 - c_2 = -402$	-397
u_{CD}	$= u_2 = -67$	-66
u^l_{exp2}	$= u_3 + c_3 = 352$	360
u^r_{exp2}	$= u_4 + c_4 = 675$	681