Name 1	Datum:
Name 2	Platz-Nr:

10 - Universal Gas Constant

General observations

Molecular weight of air, M_L =	Barometer reading, b=
Ambient temperature, t =	Reduced barometer reading, b' =
Relative air humidity, φ=	Ambient pressure, p =

Determining the mass of air in the glass bulb

Mass of the air-filled bulb	m_{KL1}=
Mass of the evacuated bulb	m_{KV1} =
Mass of the humid air: m_{KL1} - m_{KV1}	m_1=

Repeating the measurement

Mass of the air-filled bulb	m_{KL2}=
Mass of the evacuated bulb	m_{KV2} =
Mass of the humid air: m_{KL2} - m_{KV2}	m_2=

Determining the volume of the glass bulb

Mass of the evacuated bulb	m_K =
Mass of the water-filled bulb	m_{KW}=
Mass of the water in the bulb: m_{KW}-m_K	m_W=
Temperature of the water	t_W=
Density of water at temperature t_W	$\rho_W(t_W)$=
Volume of the glass bulb	V=

Approximate value for the universal gas constant (not correcting for air humidity)

From the 1st measurement	R'_1=
From the 2nd measurement	R'_2=

More precise value for the universal gas constant (taking air humidity into account)

Saturation pressure	p_{WS}=
Partial pressure of the air humidity	p_W
Partial pressure of the dry air	p_L
Molecular weight of water	M_W

Universal gas constant (from the 1st measurement):	R_1=
Universal gas constant (from the 2nd measurement):	R_2=