Checkpoint: Partial derivatives

The gas law for a fixed mass m of an ideal gas at absolute temperature T in Kelvins, pressure P in pascals, and volume V in liters is $PV = mRT$, where R is the gas constant.

- Compute each of the partial derivatives below,
- assign them the correct units,
- and say a sentence or two about what each one means. (Be careful to think about what is *constant* and what is *changing*.)

(a) $\dfrac{\partial P}{\partial V}$

(b) $\dfrac{\partial V}{\partial T}$

(c) $\dfrac{\partial T}{\partial P}$

(Bonus question for the physics-knowers: Why does the sign of each one make sense?)