Homework, Dialysis and CPB

1. If the dialyzer is rated at 4 ml/(h*mmHg), one needs to pick a pressure drop and then calculate the time to remove 1 L. For a pressure difference of 100 mmHg, 400 ml/hr will be removed, meaning that 2.5 h is needed.

2. The problem with centrifugal pumps is that when non-functioning, they can still allow blood to pass through freely. Roller pumps by their design block flow unless the rollers are in motion (i.e. it fails safe). Therefore, if there is a break in the line, stopping the pump will not stop blood loss in either the venous or arterial sides. Pressure and flow sensors, with automatic pump turn-off and valve closures, should be employed.