

Suppose a piece of equipment has an exponentially distributed failure time, with a mean time to failure of $1/M$ days, or equivalently, failure rate of M failures per day. Now, suppose you are going on an 8-day trip on which you will need to use the equipment. You need to decide whether to bring along a repair unit in case the equipment breaks down. If the equipment breaks down you will have to ship in the repair unit at a cost of \$1000. The cost of bringing the repair unit with you is \$200. If you bring the repair unit, there is no cost associated with a breakdown because it can be repaired immediately. Find an expression as a function of M , for the expected utility of bringing the repair unit and of not bringing it. What value of M is the break-even point between bringing and not bringing the repair unit?