Activity: ABC by hand, then by a second criterion

Chapter 2, Managing Inventory

Manuel D. Rossetti

Work in pairs. 20 minutes.

Names: _____

The storeroom. The turf-equipment plant's maintenance storeroom carries the ten items below. Criticality is the maintenance supervisor's rating of what a stockout stops, from 1 (nothing) to 5 (a production line).

Item	Description	Annual usage λ	Unit cost c	Criticality
M-01	Hydraulic oil, 55 gallon drum	60	\$700.00	3
M-02	Welding wire, 33 pound spool	240	\$55.00	3
M-03	Paint booth filter	1,500	\$7.00	2
M-04	Press die spring set	4	\$1,450.00	5
M-05	Safety gloves, pair	2,400	\$1.50	1
M-06	Conveyor drive belt	8	\$330.00	5
M-07	Grinding disc	500	\$2.40	2
M-08	Robot weld tip	300	\$3.00	4
M-09	Shop towels, bale	40	\$15.00	1
M-10	Proximity sensor	5	\$84.00	5

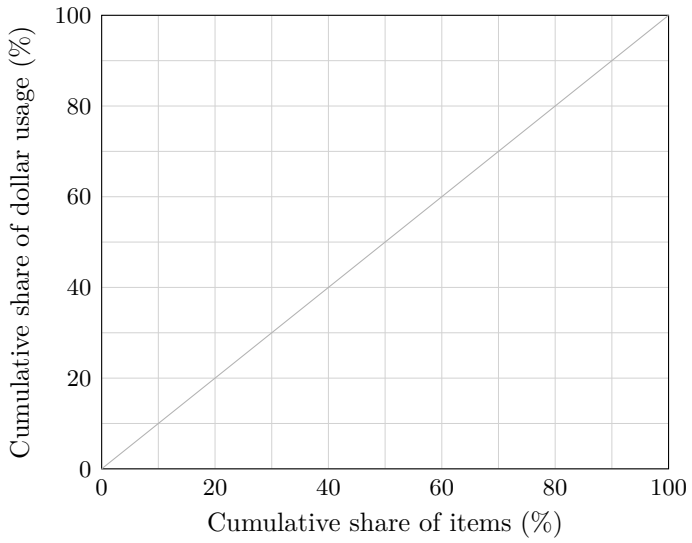
Part A. Predict

How many of the ten items do you expect to carry 80% of the annual dollar usage? Which item do you expect to rank first?

Part B. Rank, accumulate, cut

1. Compute each item's annual dollar usage λc, rank the items from largest to smallest, and accumulate.
2. Cut at 80% and 95% of cumulative value, taking each class to end with the first item that reaches its cut. Report each class's share of items and share of value.
3. Sketch the cumulative curve on the grid.

Rank	Item	λc	Cumulative	Cumulative %	Class



Part C. Add criticality

Score each item with equal weights, as in the chapter,

$$\text{score}_i = 0.5 \left(\frac{\lambda_i c_i}{\max_j \lambda_j c_j} \right) + 0.5 \left(\frac{\text{criticality}_i - 1}{4} \right)$$

and rank by score. Keep the class sizes of Part B: the same number of items in A, in B and in C.

Rank	Item	Score	New class	Old class

Which items moved, and in which direction? For each mover, is the new class the right outcome for the storeroom? Name one you would argue with.

Part D, if you have time. Three demand histories

Monthly issues over the past year:

Item	Issues by month
M-03	120, 130, 125, 118, 127, 122, 131, 124, 126, 119, 128, 130
M-04	0, 0, 1, 0, 0, 0, 1, 0, 1, 0, 0, 1
M-08	0, 110, 0, 0, 10, 0, 120, 0, 0, 15, 0, 45

Compute ADI and CV^2 of the non-zero sizes (s on $n-1$) for each, and classify each as smooth, erratic, intermittent or lumpy, with the cuts $ADI = 1.32$ and $CV^2 = 0.49$.

Exit ticket (tear off and hand in)

Name: _____

1. Give one reason the 80% cut point is a choice and not a result.

2. True or false, and why: an item in class C by dollar usage can safely be reviewed once a year.