

Question #18

Key: D

The means are $.5(250) + .3(2,500) + .2(60,000) = 12,875$ and $.7(250) + .2(2,500) + .1(60,000) = 6,675$ for risks 1 and 2 respectively.

The variances are $.5(250)^2 + .3(2,500)^2 + .2(60,000)^2 - 12,875^2 = 556,140,625$ and $.7(250)^2 + .2(2,500)^2 + .1(60,000)^2 - 6,675^2 = 316,738,125$ respectively.

The overall mean is $(2/3)(12,875) + (1/3)(6,675) = 10,808.33$ and so

$EPV = (2/3)(556,140,625) + (1/3)(316,738,125) = 476,339,792$ and

$VHM = (2/3)(12,875)^2 + (1/3)(6,675)^2 - 10,808.33^2 = 8,542,222$. Then,

$k = 476,339,792/8,542,222 = 55.763$ and $Z = 1/(1 + 55.763) = .017617$.

The credibility estimate is $.017617(250) + .982383(10,808.33) = 10,622$.