

Let the random variable Y represent costs; with $E[Y] = 2000$ and $SD[Y] = 1600$. Assume that the $RV Y$ is independent of $RV X$. Please determine the following for **net revenue**, defined as $Z = GR - Y$.

Q22. Please calculate the *EV* of net revenue, Z (units of *thousands of dollars*).

- a) 16600
- b) -17900
- c) 29800
- d) 5950
- e) 13900

Q23. Please calculate the standard deviation (*SD*) of net revenue, Z (units of *thousands of dollars*).

- a) 3087
- b) 14857
- c) 16543
- d) 7641
- e) 15028

Questions 24-27 are based on the following:

It is well-known that the new generations of microprocessors have a low yield ratio in initial production batches. In other words, the percentage of defective microprocessors is high. In one such batch, 20% of the new microprocessors are defective. A small lot of 10 microprocessors was purchased at random from this batch.

Q24. Calculate the probability that exactly 2 microprocessors were bad.

- a) 0.2000
- b) 0.0400
- c) 0.0043
- d) 0.1342
- e) 0.3020

Q25. Calculate the probability that at least 8 microprocessors were good.

- a) 0.1678
- b) 0.8000
- c) 0.3222
- d) 0.6778
- e) 0.1074

Q26. What would be the coefficient of variation for the distribution function for this experiment. In this situation, the same distribution function as the one for "bad" microprocessors applies.

- a) 0.6325
- b) 1.5811
- c) 0.8944
- d) 1.4142
- e) 0.7071

Q27. The purchaser tests each of the microprocessors each in turn. Calculate the probability that the first defective microprocessor to be discovered happens to be the 10th tested.

- a) 0.2000
- b) 0.0268
- c) 0.9732
- d) 1.0000
- e) 0.1074