
Problem Solutions

Chapter 1

1. c
2. e
3. b
4. d
5. KIVs - study time, number of study mates
KOVs - math GPA, english GPA
6. KIVs - origin account type, expediting fee
KOVs - time until funds are available, number of hours spent
7. d
8. b
9. Six sigma training is case based. It is also vocational and not theory based.
10. TQM might be too vague for workers to act on. It also might not be profit focused enough to make many managers embrace it.
11. b
12. e
13. Having only a small part of a complex job in mass production, the workers cannot easily perceive the relationship between their actions and quality.
14. Shewhart wanted skilled workers to not need to carefully monitor a large number of processes. He also wanted a thorough evaluation of process quality.
15. By causing workers to follow a part through many operations in lean production, they can understand better how their actions affect results. Also, with greatly reduced inventory and one piece flows, problems are discovered downstream much faster.
16. A book being written is an engineered system. Applying benchmarking and engaging proof readers together constitute part of an improvement system.
17. In grading exams, I would be a mass producer if I graded all problem 1s then all problem 2s and so on. I would be a lean producer if I graded entire exams one after another.
18. c
19. d
20. e
21. a

22. b
23. e
24. Green belts should know terminology and how to apply the methods competently. Black belts should know what green belts know and have enough understanding of theory to critique and suggest which methods should be used in a project.
25. Knowledge: Physics refers to attempt to predict occurrences involving few entities with high accuracy.
Comprehension: One table in physics might show the time it takes for various planets to orbit the sun.
Application: An example application of physics is predicting the time it takes for the earth around the sun.
Analysis: An analysis question relates to identifying whether a given type of theory can achieved the desired level of accuracy.
Synthesis: An issue for synthesis is how to connect mathematical technology with a need to forecast blast trajectories.
26. a

Chapter 2

1. b
2. e
3. a
4. d
5. a
6. c
7. c
8. a
9. Acceptance Sampling, Process Mapping, Regression
10. Acceptance Sampling, Control Planning, FMEA, Gauge R&R, SPC Charting
11. d
12. d
13. e
14. a
15. a
16. d
17. See the examples in the chapter.
18. An additional quality characteristic might be the groove width with $USL = 0.60$ millimeters and $LSL = 0.50$ millimeters.
19. b
20. a
21. e
22. c
23. See the example in Chapter 4.
24. See the examples in Chapter 9.
25. In Step 5 of the method, which order should the base be folded. Fold up first from the bottom or from the sides?

18. The policy in problem 17 is always more likely to accept lots because the OC curve is always above the preceding OC curve.
19. The ideal OC curve would look like Figure PS.6. This follows because the policy would function like complete and perfect inspection but at potentially reduced cost.

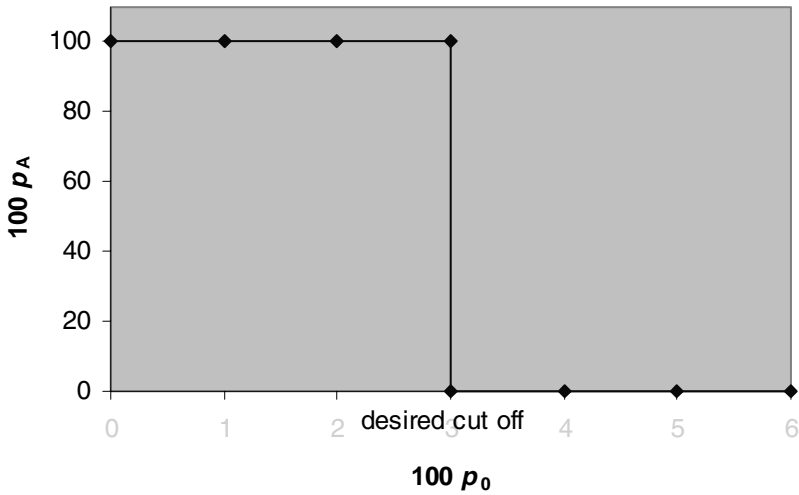


Figure PS.6.

Chapter 11

1. f
2. b
3. a
4. d
5. c
6. $df = 4$ using the rounding formula.
7. f
8. b
9. f
10. a
11. c

Chapter 12

1. ug
2. b
3. c
4. a
5. d