**Answers to class problems:**

The production function for snack-sized bags of potato chips is as follows:



Where Q = total bags of potato chips, X = machine hours, and Y = worker hours.

1. Ans.

Q = 5750

1. Ans.

MPx = 350

MPy = 50

1. Ans.

MRPx = 262.5

MRPy = 37.50

1. Ans.

200 ≠ 262.5 (firm should use more of input X)

40 ≠ 37.50 (firm should use less of input Y)

1. Ans.

Q’/Q = 6627.5/5750 = 1.15 > 1.11 (increasing returns to scale)

Laboratory Testing, Inc. provides routine drug tests for employers in the Los Angeles metropolitan area. Skilled technicians, using equipment produced by two leading competitors in the medical equipment industry, supervise tests. Records for the current year show an average of 25 tests per hour performed on machine type A, and 60 tests per hour on a new machine, type B. Machine A is leased for $240,000 per year and Machine B is leased for $408,000 per year. On average, each machine is operated 25 eight-hour days per month.

1. Ans.

MPA = 60,000 tests/yr

MPB = 144,000 tests/yr

b. Ans.

PA/MPA = PB/MPB

$4/test ≠ $2.83/test (equipment A is less productive on a cost per unit basis)

The new lease would have to be:

X = $408,000/yr

60,000 tests/yr 144,000 tests/yr

X = (60,000)(408,000) = $170,000/yr

144,000