

QR 26: Choice and Chance
The Mathematics of Decision Making

Unit II Activity

Name: _____

1. Suppose that you are having a two-course lunch where the price is fixed regardless of what you choose. The entries are either Lasagne or Chef's Salad. The desserts are either Fruit Salad or Cheese Cake. Rate each of these four individual dishes on a scale of 1 to 10 where 10 is the most preferable to you.

Lasagna	_____
Chef's Salad	_____
Cheese Cake	_____
Fruit Salad	_____

Now rate each of your four possible meals by adding up the points you have assigned to each dish.

Lasagna and Cheese Cake	_____
Chef's Salad and Cheese Cake	_____
Chef's Salad and Fruit Salad	_____
Lasagna and Fruit Salad	_____

Does the ranking of meals by totaling the dish points reflect your true lunch preferences?

Why should this procedure work or not work in general as a way of selecting lunch? [F]

2. As head of a company, you must choose one from among six projects in which costs and benefits accrue over a number of years. For example, Project A involves an initial investment of \$10 million, followed by a return of \$5 million at the end of both the first and second years. Given the cash flows below for all six projects, which would you select and why? How would you rank the others? Describe your reasoning. [F]

Cash Flow						
Year	A	B	C	D	E	F
0	-10m	-10m	-10m	-1m	-16m	-16m
1	+5m	+5m	+2m	+0.5m	+16m	+3.2m
2	+5m	+5m	+8m	+0.5m	+5m	+19.2m
3	0	+5m	+5m	+0.5m	0	0
4	0	+5m	+5m	+0.5m	0	0

3. Suppose we agree, based on the following scores of four students on four assignments, that Student X deserves at least as high a letter grade as Student Y.

Assignment				
Student	1	2	3	4
X	70	65	40	40
Y	40	80	40	40
Z	70	65	80	65
W	40	80	80	65

- (a.) Would you say that Student Z deserves at least as high a letter grade as Student W? Why or why not?
- (b.) Would it make a difference to your answer if some of the assignments were not scored out of a possible total of 100? Explain.
- (c.) Would it make a difference to your answer if 50 points were supposed to be the minimum passing grade?
- (d.) Would it make a difference if the policy were to drop the lowest grade?