

- The president of the Martin Company is considering two alternative investments, X and Y . If each investment is carried out, there are four possible outcomes. The present value of net profit and probability of each outcome follow:

Investment X			Investment Y		
Outcome	Net Present Value	Probability	Outcome	Net Present Value	Probability
1	\$20 million	0.2	A	\$12 million	0.1
2	8 million	0.3	B	9 million	0.3
3	10 million	0.4	C	6 million	0.1
4	3 million	0.1	D	11 million	0.5

- What are the expected present value, standard deviation, and coefficient of variation of investment X ?
- What are the expected present value, standard deviation, and coefficient of variation of investment Y ?
- Which investment is riskier?
- The president of the Martin Company has the utility function $U = 10 + 4P - 0.2P^2$ where U is utility and P is net present value. Which investment should she choose?

2) The *New York Times* reports that Wal-Mart has decided to challenge Netflix and enter the online DVD-by-mail market. Because of economies of scale, Wal-Mart has a slight cost advantage relative to Netflix. Wal-Mart is considering the use of a limit pricing strategy. It can enter the market by matching Netflix on price. If it does, and Netflix maintains its price, then both firms would earn \$5 million. But if Netflix drops its price in response, Wal-Mart would have to follow and would earn \$2 million; Netflix would earn \$3 million. Or Wal-Mart could enter the market with a price that is below Netflix's current price but above its marginal cost. If it does, Netflix would make one of two moves. It could reduce its price to below that of Wal-Mart. If it does, Wal-Mart will earn a profit of \$0, and Netflix will earn a profit of \$2 million. Or Netflix could keep its present price. If Netflix keeps its present price, Wal-Mart can keep its present price and earn \$6 million (while Netflix earns \$4 million). Or Wal-Mart can increase its price and earn \$2 million while Netflix earns \$6 million.

- Draw the extensive form of this game and solve it.
- Draw the game's matrix form and identify any Nash equilibria.