

Quiz 3**Question 1**

In each case an investment grows from an initial value P to a final value S over a time period T . Give both the annual ordinary compound growth rate and the annual continuously compounded growth rate

(a) $P=4.5$, $S=7.2$, $T=4$ years.

(b) $P=100$, $S=140$, $T=32$ months.

(c) If contract specifies a continuously compounding rate and you wish your investment to triple within 20 years, what annual continuously compounding rate do you require?

(d) If contract specifies a ordinary compounding rate and you wish your investment to increase by 50% within 5 years, what annual ordinary compounding rate do you require?

(e) You have the choice of the following three investments

- a. 1.6% per quarter ordinary compounding
- b. 0.52% per month continuous compounding
- c. 6.5% for 1 year ordinary compounding.

Which investment would you choose to maximize your return?

Question 2

Give an equation of the form $y=mx+b$

- (a) When $y=0$ $x=15$ and for each 5 unit increase in x , y decreases by 2 units.

- (b) When $x=-6$, $y=0$ while when $x=0$, $y=3$

- (c) Suppose that demand decreases by 1000 units for every increase in price of \$1, and that when price equals \$70 the demand is zero. Write down the quantity demanded, Q_D , as a function of price, P , i.e. write an equation of the form $Q_D=m+bP$. You may assume the relationship between quantity demanded and price is linear.

- (d) Suppose that the quantity supplied is zero if the price is less than \$10 and that for every \$2 increase in price the amount supplied increases by 1000 units. Write down quantity supplied, Q_S as a function of price, i.e. write an equation of the form $Q_S=m+bP$. You may assume the relationship between quantity supplied and price is linear.

- (e) A market is said to be in equilibrium if $Q_D=Q_S$. Using your answers to parts (c) and (d) find the equilibrium price and quantity.