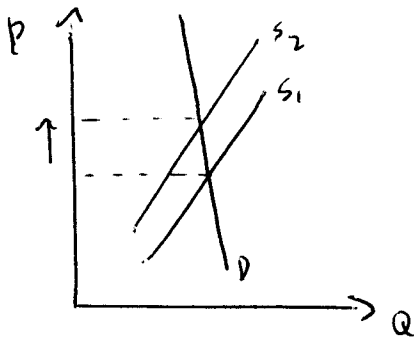
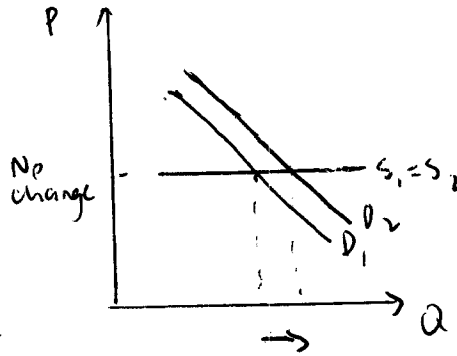


Version A

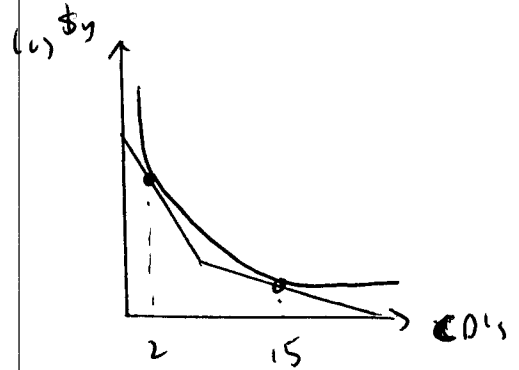
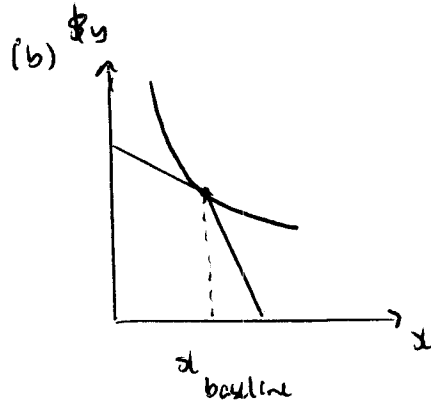
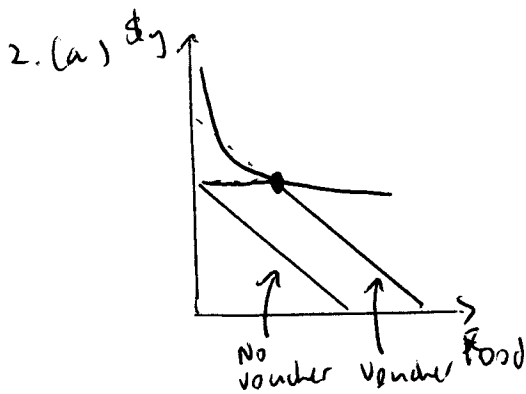
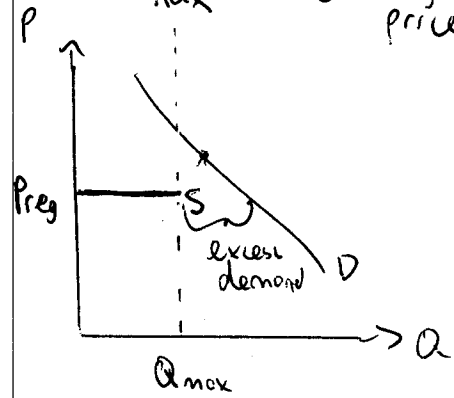
1. (a) Wholesale demand is very price inelastic.



(b) Retail supply is unlimited at regulated price.



(c) Blackout means excess demand. $Q_{max} < Q_D$ at regulated price.



$$3. (a) MRS_{ce} = -\frac{dy}{dx} = -\frac{d\left(\frac{80}{x}\right)}{dx} = -\left(-\frac{80}{x^2}\right) = \frac{80}{x^2}$$

$$(b) MRS_{ce} = \frac{P_c}{P_e} \Rightarrow \frac{80}{x^2} = \frac{2}{2.5} \Rightarrow x^2 = 100 \Rightarrow x = \underline{10} \text{ espresso.}$$

$$(c) x = 10 \Rightarrow y = \frac{80}{10} = 8 \Rightarrow \text{Income} = 10 \times \$2 + 8 \times \$2.50 = \underline{\underline{\$40.}}$$

$$4. (a) \varepsilon = -\frac{\Delta Q/Q}{\Delta P/P} = -\frac{(22-23)/23}{(40-60)/40} = \frac{1/23}{1/2} = \frac{2}{23} = \underline{\underline{0.087}}$$

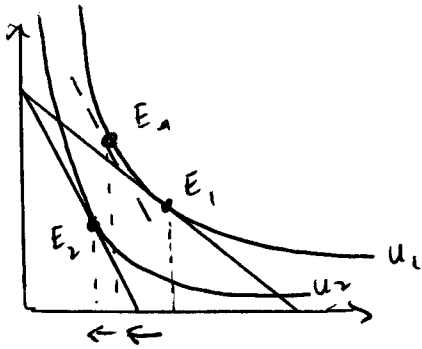
$$(b) P \downarrow \Rightarrow PQ \uparrow \text{ if } Q \uparrow \text{ more than } P \downarrow \Rightarrow \underline{\underline{\varepsilon > 1}} \text{ (Price elastic)}$$

$$(c) \text{Here } x = 100 - 4 \times 10 - 4 \times 5 + 20 \times 10 = 240$$

$$\varepsilon_P = -\frac{\Delta x/x}{\Delta p/p} = -\frac{dx}{dp} \times \frac{p}{x} = -4 \times \frac{10}{240} = \frac{1}{6} = \underline{\underline{.16}}$$

Version A (cont)

5.



- (a) Substitution $E_1 \rightarrow E_2$ [E_2 : Old utility, new prices]
- (b) Income $E_2 \rightarrow E_3$
- (c) Different answers possible. For my diagram $p \uparrow \Rightarrow x \downarrow$ so non-Giffen.

Version B

1 & 2 See Version A

3. (a) $MRS_{ce} = -\frac{dy}{dx} = -\frac{d}{dx}\left(\frac{20}{x}\right) = -\left(-\frac{20}{x^2}\right) = \frac{20}{x^2}$

(b) $MRS_{ce} = \frac{p_c}{p_e} \Rightarrow \frac{80}{x^2} = \frac{2}{2.5} \Rightarrow x^2 = 100 \Rightarrow x = 10$ espresso

(c) $x = 10 \Rightarrow y = \frac{80}{10} = 8 \Rightarrow \text{Income} = 10 \times \$2 + 8 \times \$2.50 = \40

or $x = 10 \Rightarrow y = \frac{20}{10} = 2 \Rightarrow \text{Income} = 10 \times \$2 + 2 \times \$2.50 = \25

4. (a) $\epsilon = -\frac{\Delta Q/Q}{\Delta P/P} = -\frac{(24-22)/24}{(40-60)/40} = \frac{1/12}{1/2} = \frac{1}{6} = 0.16$

(b) $P \downarrow \Rightarrow PQ \downarrow$ if $Q \uparrow$ less than $P \downarrow \Rightarrow 0 < \epsilon < 1$ (Price inelastic)

(c) Here $x = 100 - 4 \times 5 - 4 \times 5 + 20 \times 10 = 260$

$\epsilon = -\frac{\Delta x/x}{\Delta p/p} = -\frac{dx}{dp} \times \frac{p}{x} = -4 \times \frac{5}{260} = \frac{1}{13} = 0.077$

5. See Version A

Multiple Choice

Ques	1	2	3	4	5
Version A	d	b	b	d	b
Version B	d	a	a	a	a

Short Answer 1-5 straightforward except details in question 1 and question 4.

Multiple Choice 1 very hard
2 & 5 tricky (some thought)
3 & 4 straightforward

Out of 40

75th perc. 30
Median 24.5
25th perc. 21

A - 35 or more	C + 22 or more
A - 32 " "	C - 20.5 " "
B + 29 " "	C - 19 " "
B - 26 " "	D + 18 " "
B - 24 " "	D - 17 " "
	D - 16 " "

