

X208/701

NATIONAL
QUALIFICATIONS
2011

TUESDAY, 24 MAY
9.00 AM – 11.30 AM

GEOGRAPHY
ADVANCED HIGHER

1. Candidates are expected to attempt **three** questions, **one** from Section A and **one** from Section B, **and** the question in Section C.
2. Both questions in Section A are worth 30 marks each and both questions in Section B 20 marks each. The question in Section C is worth 10 marks.
3. In all questions, marks will be given for sketch-maps and diagrams which are integral parts of an answer.
4. Candidates are encouraged to use the Supplementary Items and tracing paper provided for annotation or as bases for diagrams. If used, the resources should be placed inside the front cover of the candidate's answer book.
5. Candidates are reminded that they have an atlas which can be a valuable resource in answering questions in all parts of the paper.



SECTION A

Answer ONE question ONLY from this Section

Map Interpretation

Supplementary Item A, Ordnance Survey Map, Extract No 1883/OL27 1:25 000 (Explorer Series) North York Moors, is the basis for answers to questions in this Section.

For whichever question you choose in this Section (ie 1. or 2.) you are expected to make extensive and detailed use of your atlas and the map extract.

You are strongly advised to read the whole of both question 1 and question 2 before you make your choice.

1. The North Yorkshire Moors area is a popular destination for schools to visit for geographical fieldwork, due to its varied landscape and fieldwork opportunities.

To exploit this popularity a new route, making use of existing paths and roads, is to be established which would introduce students to aspects of the physical and human environment.

The route should be between 12 and 15 km long and should start at the car park at **844088**, and finish at an appropriate location. The grid reference for a suitable final pickup point must be identified. It is expected that the route and activities would involve a full day's fieldwork.

- (a) On the tracing paper, *Supplementary Item B* for question 1, you should carefully trace your chosen route. 4
- (b) Add labels to the tracing of the route to highlight at least **four** locations where students could stop and come into contact with different fieldwork experiences. 8
- (c) In your answer book, you should describe and explain, **using direct map evidence**, why the **whole** route has the potential to show the different physical and human environments of the area. You should also give clear and detailed examples of what each of your locations has to offer as a point of interest for field study and **briefly** discuss the potential fieldwork activities. 18

(30)

2. You are advised to read **all** parts of this question before you begin your answer. Note that repetition of material will not gain any marks.

Supplementary Item A, the Whitby map extract, must be used **in detail** when answering this question.

The site and location/situation of settlements on this map extract are closely tied to the **Physical Geography** of the area.

- (a) Whitby, with a population of over 13 000, is the largest settlement on the map. Using **specific, detailed map evidence** and *Supplementary Item C* describe **and** explain the role that **Physical Geography** in the area of Whitby has had on its site, development and possible functions.

10

- (b) Apart from Whitby, there are numerous other settlements of varying sizes on the map extract.

On the tracing overlay **for the area shown in *Supplementary Item D* for Question 2**, draw a **sketch** map to show the general **distribution** of settlements.

8

- (c) Using your information on the general distribution from your sketch map in part (b), select examples of different types and sizes of settlements. For each of these, **explain** its location, growth and possible functions in terms of the constraints/limitations and opportunities offered by the Physical Geography.

12

(30)

[Turn over for SECTION B on *Page four*

SECTION B

Answer ONE question ONLY from this Section

For whichever question you choose in this Section (ie 3. or 4.) you are encouraged to make use of your atlas.

You are strongly advised to read the whole of both question 3 and question 4 before you make your choice.

3. One key variable that affects wheat production is climate, within which rainfall is a very important factor. **Table 1** shows the annual rainfall values for Sittingbourne, a meteorological station in Kent in the south-east of England.

Table 1: Wheat yields (UK average) and average annual rainfall at Sittingbourne

Year	Wheat yields (tonnes/hectare)	Average annual rainfall, Sittingbourne, Kent (mm)
1996	8·1	463
1997	7·4	595
1998	7·6	724
1999	8·0	628
2000	8·0	931
2001	7·1	733
2002	8·0	723
2003	7·8	567
2004	7·8	581
2005	8·0	410
2006	8·0	642
2007	7·0	636

3. (continued)

You are asked to establish whether a relationship exists between rainfall and wheat production in the UK.

- (a) State the null hypothesis. 1
- (b) Complete the calculation of the Pearson Product Moment correlation coefficient using the formula given below. 4

You should show most of your working on *Supplementary Item E*.

$$r = \frac{\sum (x - \bar{x})(y - \bar{y})}{\sqrt{\sum (x - \bar{x})^2 \sum (y - \bar{y})^2}}$$

where x = average yield
 y = annual average rainfall
 r = Pearson Product Moment correlation coefficient
 (where r will be in the range of -1 to $+1$).

All working should be to **two decimal places**.

- (c) Comment on the suitability of using Pearson Product Moment correlation coefficient for measuring the correlation between the two variables in this data set. 3
- (d) State your result in terms of the null hypothesis. Using **Table 2** below, is this relationship statistically significant? What reasons might there be for your result? 5

Table 2: Significance Levels

Degrees of Freedom	95%	99%
10	0.576	0.708

Table 3 below may help when answering this question.

- (e) **Explain** the other factors which may be responsible for the variations in wheat yields over this period of time. 7

(20)

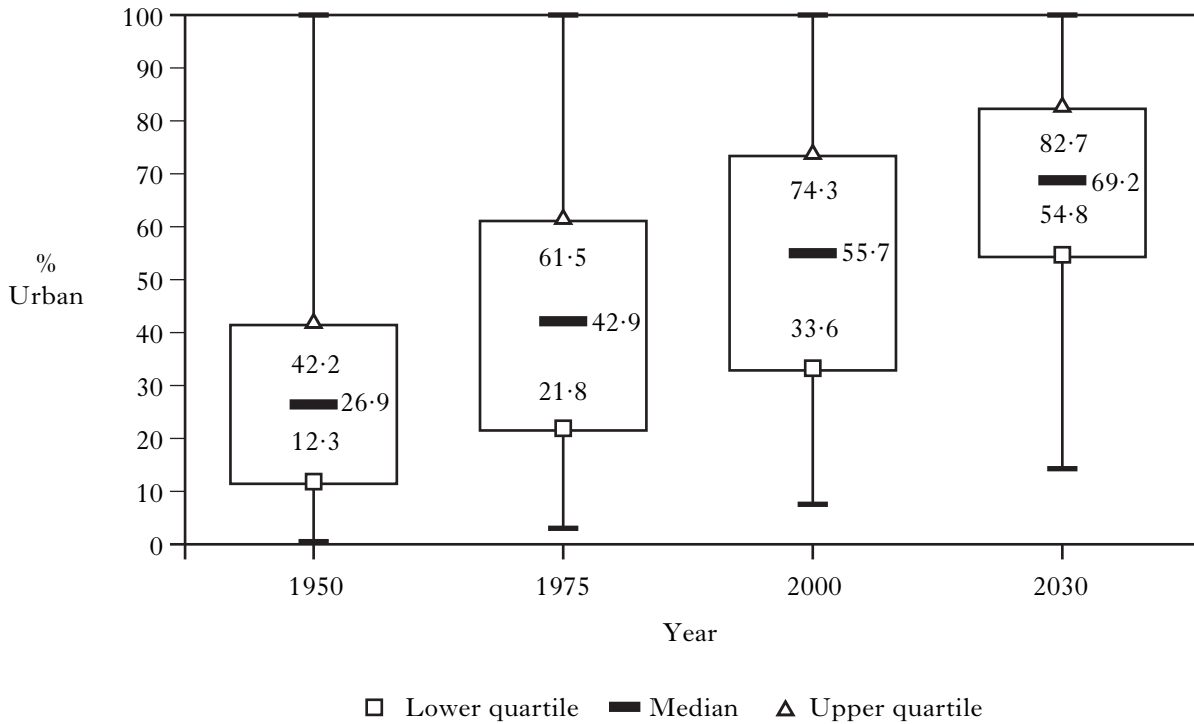
Table 3: Wheat Production in the UK 1996–2007

Year	Production area of wheat (thousands of hectares)	Average yield (tonnes/hectares)	Price of animal feed wheat (£/tonne)	Wheat production as % of total UK use
1996	1976	8.1	111	125
1997	2036	7.4	89	120
1998	2045	7.6	75	124
1999	1847	8.0	73	113
2000	2086	8.0	65	118
2001	1635	7.1	75	103
2002	1996	8.0	63	102
2003	1873	7.8	68	121
2004	1990	7.8	77	110
2005	1867	8.0	67	110
2006	1833	8.0	72	108
2007	1830	7.0	98	105

4. You are advised to use your atlas in this question.

The information, provided in Diagram Q4A below, shows the distribution of urban population, as percentages, for the years 1950, 1975, 2000 and the projected information for 2030. All countries in the diagram have populations of 100 000 or more.

Diagram Q4A: Distribution of countries with 100 000 inhabitants or more by % of their urban population; 1950, 1975, 2000 and 2030



- (a) **Describe** the technique used in Diagram Q4A and **explain** how the component parts are calculated. 4
- (b) Using Diagram Q4A, **describe** the changes in % urban population from 1950 through to 2030. **Explain** why this technique is suitable for presenting the information. 6
- (c) Diagram Q4B, on *Page seven*, shows information for urban population for selected countries in the world for 2000 and 2030. Referring to both Diagram Q4A and Diagram Q4B, give reasons for the **changes** shown. You should use specific examples, either from Diagram Q4B, or from countries you have chosen from your atlas. 10

(20)

4. (continued)

Diagram Q4B: Selected countries of the world: urban population % 2000 and 2030

Country	% Urban Population in 2000	% Projected Urban Population by 2030
Afghanistan	16·8	36·3
Australia	86·9	91·9
Bahrain	94·5	98·8
Canada	78·9	84·4
Channel Islands	30·1	36·6
China	37·3	60·3
Denmark	85·1	89·1
India	26·4	40·7
Indonesia	44·1	68·9
Ireland	58·3	70·4
Jamaica	52·1	64·3
Japan	65·4	73·7
Kenya	17·5	33·0
Mali	25·7	47·4
Nepal	10·5	30·6
New Zealand	85·0	89·5
Nigeria	44·1	66·0
Norway	76·5	81·9
Poland	62·0	70·0
Portugal	55·9	71·4
South Africa	57·7	71·3
United Arab Emirates	70·4	80·5
United Kingdom	89·3	92·2

[Turn over for SECTION C on *Page eight*

SECTION C

This question must be answered

5. Geography students in Whitby (see *Supplementary Item A*) were asked to collect a range of information which they could use later to prepare a presentation about positive and negative impacts of **tourism** in their local area. This presentation could be in the form of poster, PowerPoint . . .

(a) State an appropriate research question.

1

(b) Describe a range of different techniques which the students could use to gather the information. Suggest how the different sets of data gathered could be presented in an interesting and varied way.

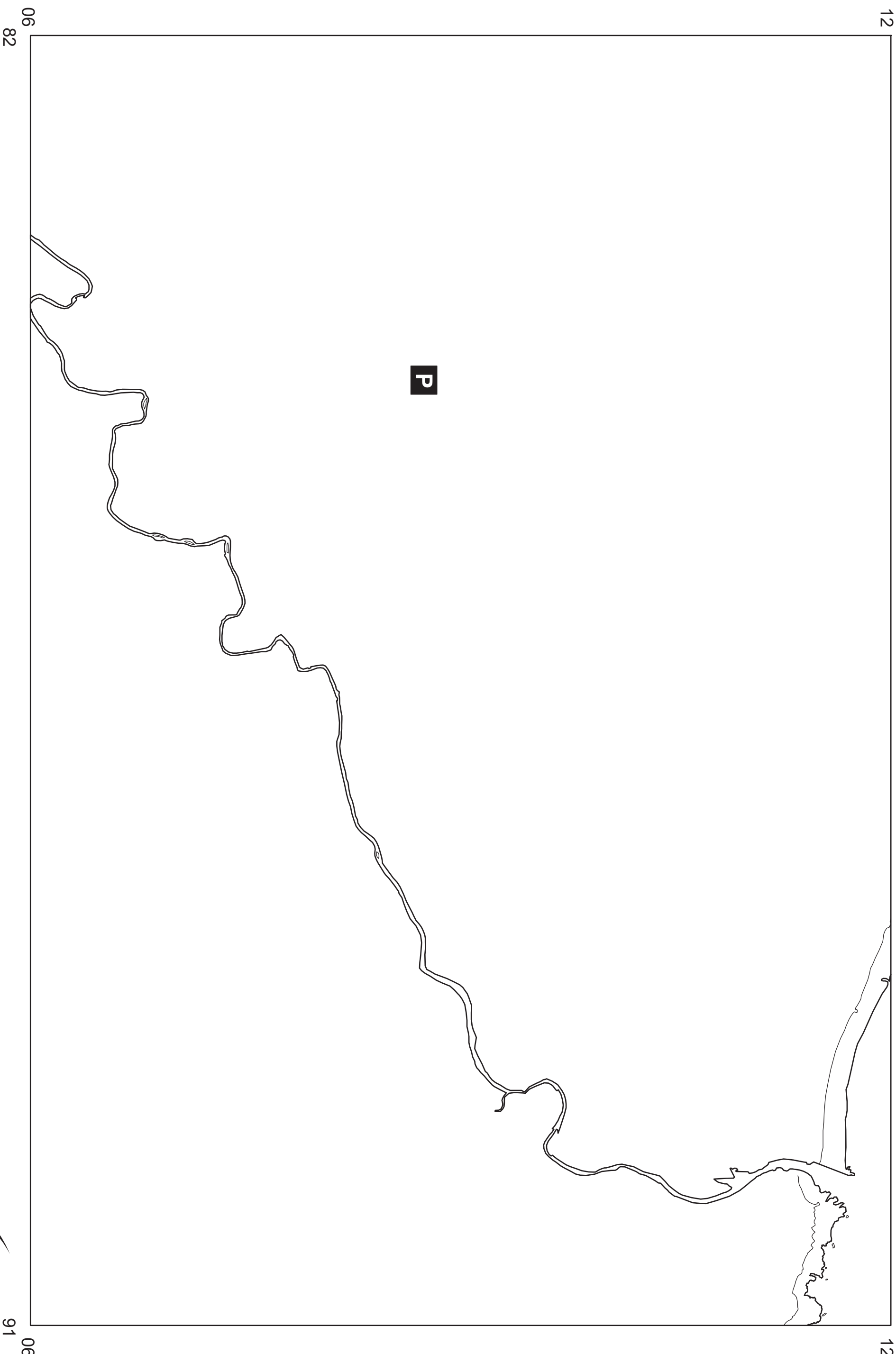
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[END OF QUESTION PAPER]

Date of birth

9112



X208/704

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2011

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GEOGRAPHY
ADVANCED HIGHER
SECTION A
Supplementary Item C
for Q2

Fill in these boxes.

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day Month Year

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If annotated by the candidate, to be placed inside
the front cover of the candidate's book and
thus sent to the Scottish Qualifications Authority.



SUPPLEMENTARY ITEM C FOR QUESTION 2

**Photograph of high tide on the River Esk at Whitby,
looking north-northeast from GR 898101**



Full name of centre

Name of candidate

Date of birth

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X208/706

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GEOGRAPHY
ADVANCED HIGHER
SECTION B
Supplementary Item E
for Q3

Fill in these boxes.

Full name of centre

Town

Forename(s)

Surname

Date of birth

Day Month Year

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SUPPLEMENTARY ITEM E

Year	Wheat yield (tonnes/ha)	Average annual rainfall, Sittingbourne, Kent (mm)					
	x	y	$(x - \bar{x})$	$(y - \bar{y})$	$(x - \bar{x})^2$	$(y - \bar{y})^2$	$(x - \bar{x})(y - \bar{y})$
1996	8.1	463	0.37	-173.08	0.14	29956.69	-64.04
1997	7.4	595	-0.33	-41.08	0.11	1687.57	13.56
1998	7.6	724	-0.13	87.92	0.02	7729.93	-11.43
1999	8.0	628	0.27	-8.08	0.07	65.29	-2.18
2000	8.0	931	0.27	294.92	0.07	86977.81	79.63
2001	7.1	733	-0.63	96.92	0.40	9393.49	-61.06
2002	8.0	723	0.27	86.92	0.07	7555.09	23.47
2003	7.8	567	0.07	-69.08	0.00	4772.05	-4.84
2004	7.8	581	0.07	-55.08	0.00	3033.81	-3.86
2005	8.0	410	0.27	-226.08			
2006	8.0	642	0.27	5.92			
2007	7.0	636	-0.73	-0.08			
	92.8	7633					
	$\bar{x} = 7.73$	$\bar{y} = 636.08$					