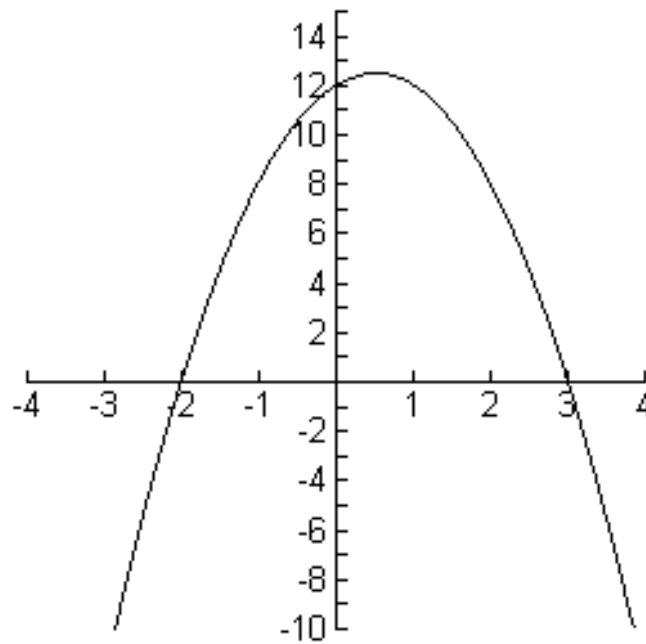
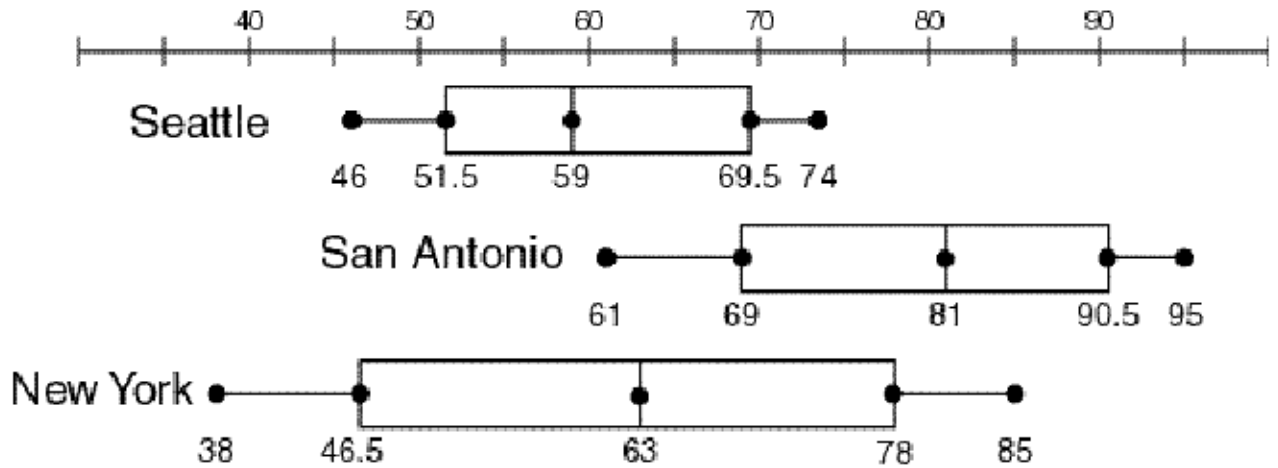


1. The diagram below shows a quadratic in the form  $ax^2 + bx + c$ .



- Find the value of  $a$ .
- Find the value of  $b$ .
- Find the value of  $c$ .

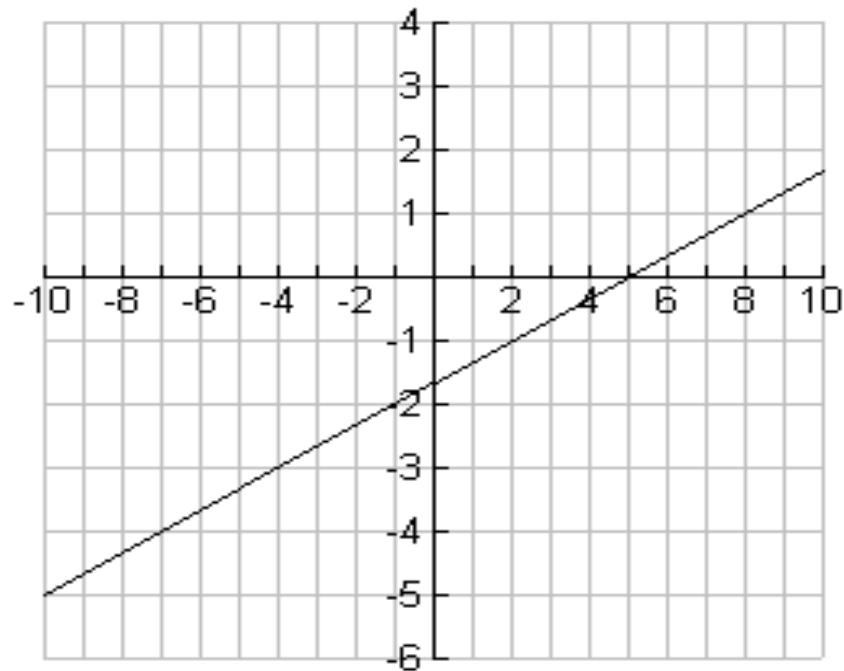
2. The diagram below the temperatures (in degrees F) of 3 American cities over twelve months.



- Write down the city had the largest range.
- Find the median temperature of San Antonio.
- Find the city with the largest inter-quartile range and state calculate the inter-quartile of this city.

3. Find the equation of the tangent to the function  $f(x) = x^3 - 3x^2 + 7x - 5$  at the point where  $x = 2$ .
  
4. Triangle PQR has  $PQ = 9$  cm and  $PR = 14$  cm. The size of angle  $\widehat{PRQ}$  is  $25^\circ$ . Find the two possible values for the angle  $\widehat{PQR}$ .

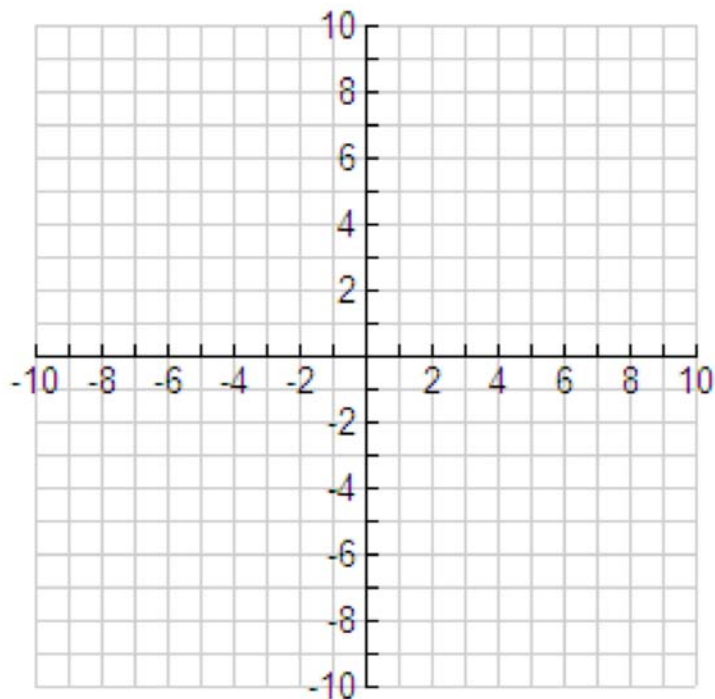
5. The diagram below shows a straight line.



- Find the equation of the line in the form  $ax + by + c = 0$ .
- A line perpendicular to the line above intersects the line at the  $(2, -1)$ . Find the equation of the perpendicular line.

6.  $L_1: 5x + 2y - 11 = 0$  and  $L_2: 2x - 3y - 12 = 0$ .

Draw the lines  $L_1$  and  $L_2$  on the diagram below.



Using the graph above solve the simultaneous equations:

$$5x + 2y - 11 = 0$$

$$2x - 3y - 12 = 0$$

7.  $x = 5.92 \times 10^5$  and  $y = 8.15 \times 10^{-9}$ .

Find each of the following giving your answer in the form  $a \times 10^k$ , where  $1 \leq a \leq 10$ .

a)  $2xy$

b)  $\frac{x}{y}$

8. The cost of sending a parcel in the USA is determined by the equation:

$$C = 0.50 + 2.25x \quad 0 \leq x < 10$$

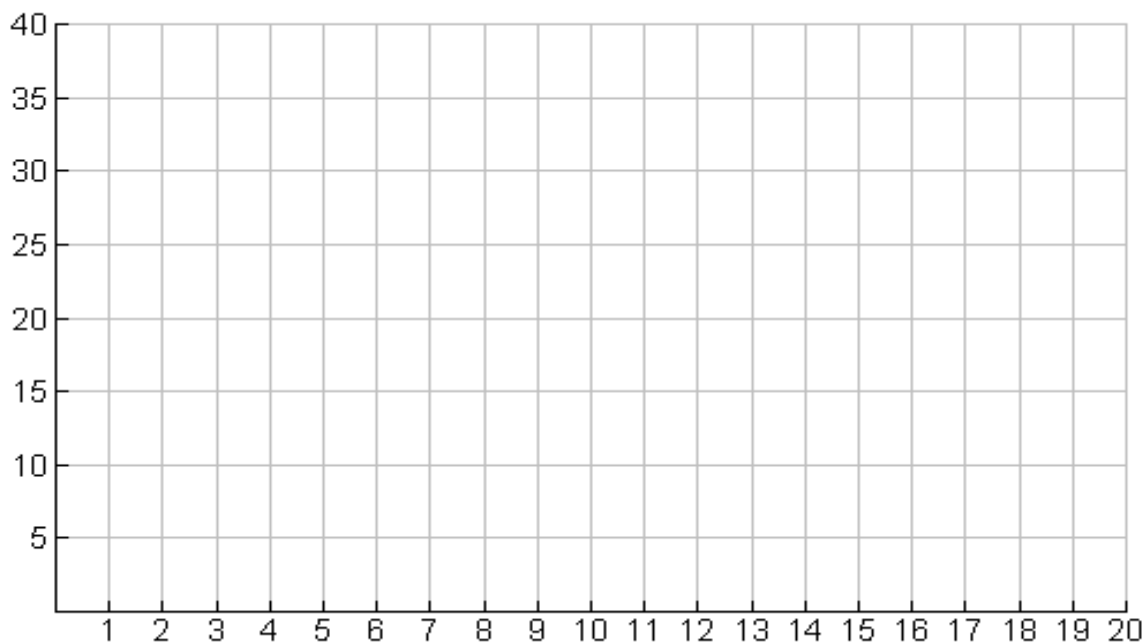
$$C = 2.50 + 1.75x \quad 10 \leq x$$

where  $C$  is the cost of the parcel and  $x$  is the mass in kg.

- a) Complete the table below to show the cost of various parcels in the US.

$x$	2	4	6	8	10	12	14	16
$C$	5	9.5		18.5		23.50		30.5

- b) Show this information on the graph below.



- c) Use your graph to find the cost of a parcel with a mass of 15 kg.
9. Consider the statement '*if a shape is a parallelogram then it is a rectangle*'.
- a) For this statement write in words,
- its contrapositive,
  - its inverse,
  - its converse.

- b) Which of the four statements above is true?

Answers:

a) i).....

a) ii).....

a) iii).....

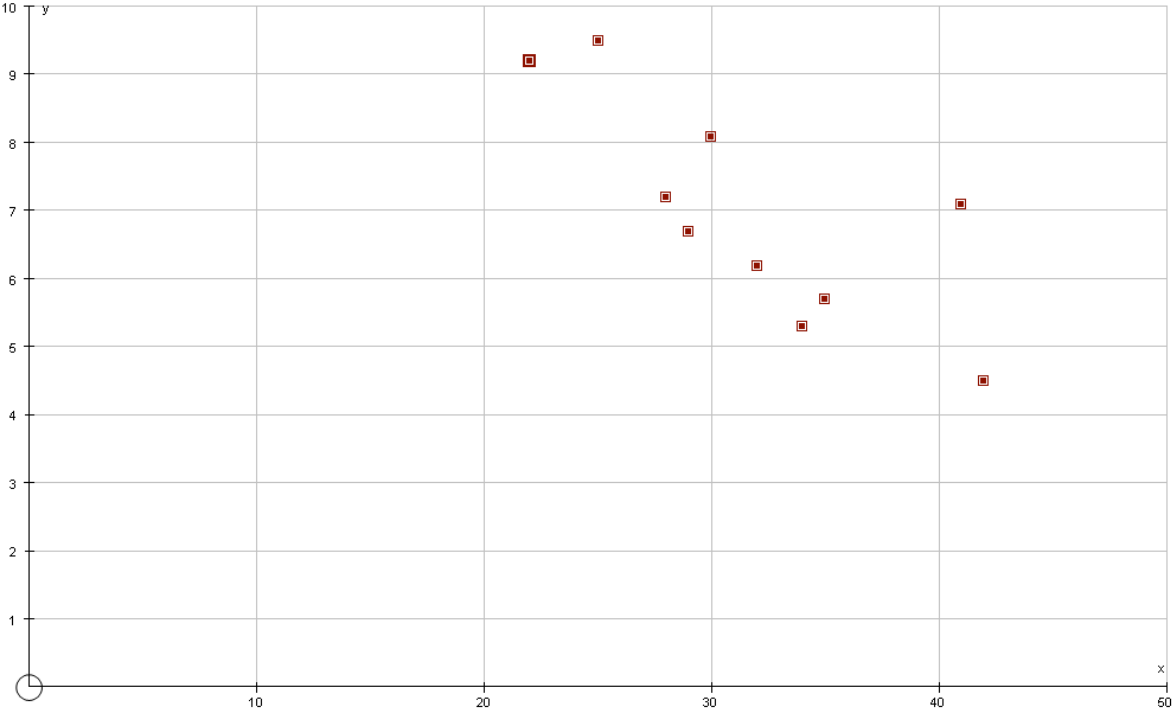
a) iv).....

b).....

10. Students measure their body fat percentage against their 'beep' test score. The results of the 10 students are in the table below.

Fat % ( $x$ )	42	35	34	32	41	29	28	30	25	22
Beep test level ( $y$ )	4.5	5.7	5.3	6.2	7.1	6.7	7.2	8.1	9.5	9.2

- a) Find the values of  $\bar{x}$  and  $\bar{y}$ .
- b) Use these values to plot the line of best fit on the scatter diagram below.



c) A student has a body fat % of 35, find their expected beep test score.

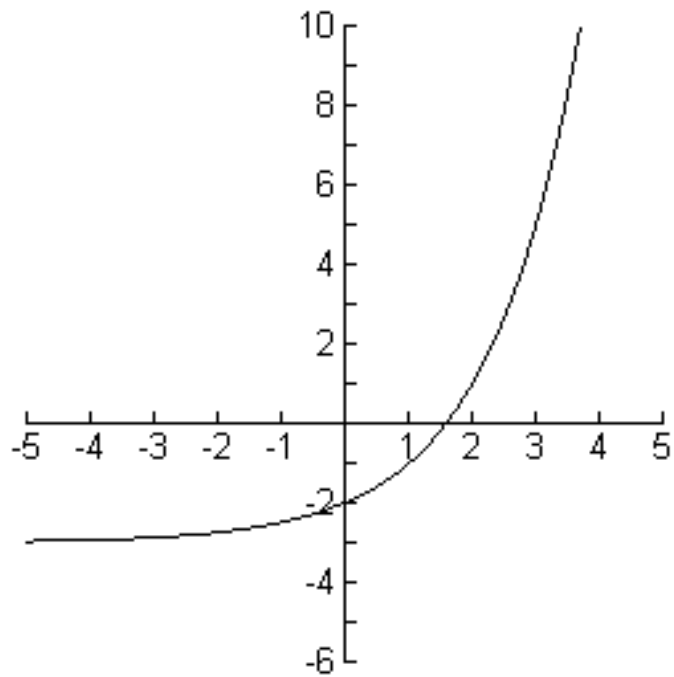
Answers:

a) .....

c) .....

11. The curve below shows a diagram of the  $y = 2^x - 3$





- The curve has the coordinates  $(0, a)$  and  $(1, b)$ . Find  $a$  and  $b$ .
- Find the equation of the asymptote of this curve.

12. 1 US\$ = 3.75 UAE Dinah.

- a) Find the value of 12500 UAE Dinah in US\$.
- b) When 900 GBP is changed to US\$ it is worth \$1550. Find the exchange rate of GBP to US\$ in the form,
  - i) 1 US\$ = ..... GBP
  - ii) 1 GBP = ..... US\$

Answers:

a) .....

b) i) .....

b) ii).....

13. Sam has 2 unbiased four sided spinners. The first spinner has two sides black and two red. The other spinner has the integers one to four labeled on them.

- a) How many outcomes are there when both the spinners are spun.

Find the probability of getting,

- b) a red sector with a 3,
- c) a black sector with an even number.
- d) a prime number from the numbered spinner.

Answers:

a) .....

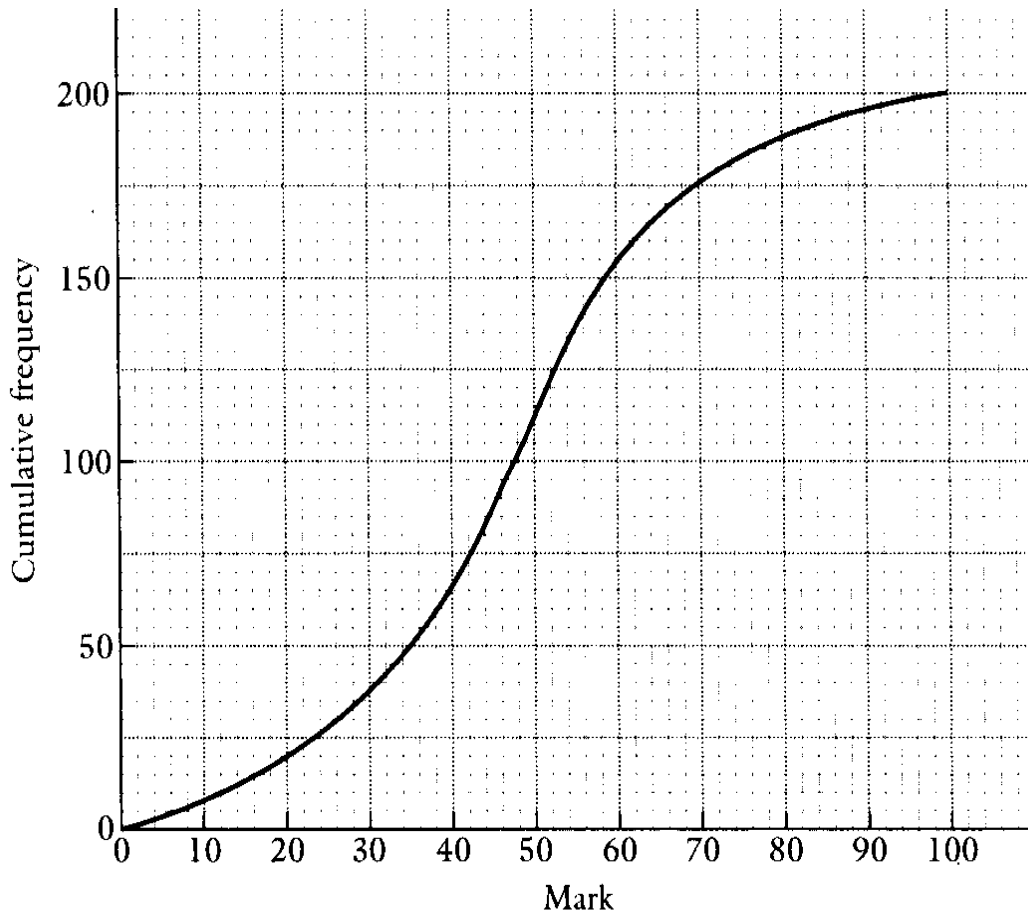
b) .....

c) .....

d) .....

14. Amanda saves \$10 in the first month, \$12 in the second, \$14 in the third and so on.
- a) Calculate the value of Amanda's savings after 3 years.
  - b) In which month (give a number) will she deposit \$100.

15. The diagram below shows the marks of 200 students who sat an IB maths examination.



Use your diagram to find,

- a) find the median,
- b) the inter-quartile range,
- c) the value of the 60<sup>th</sup> percentile.

Answers:

a) .....

b) .....

c) .....

## Paper C

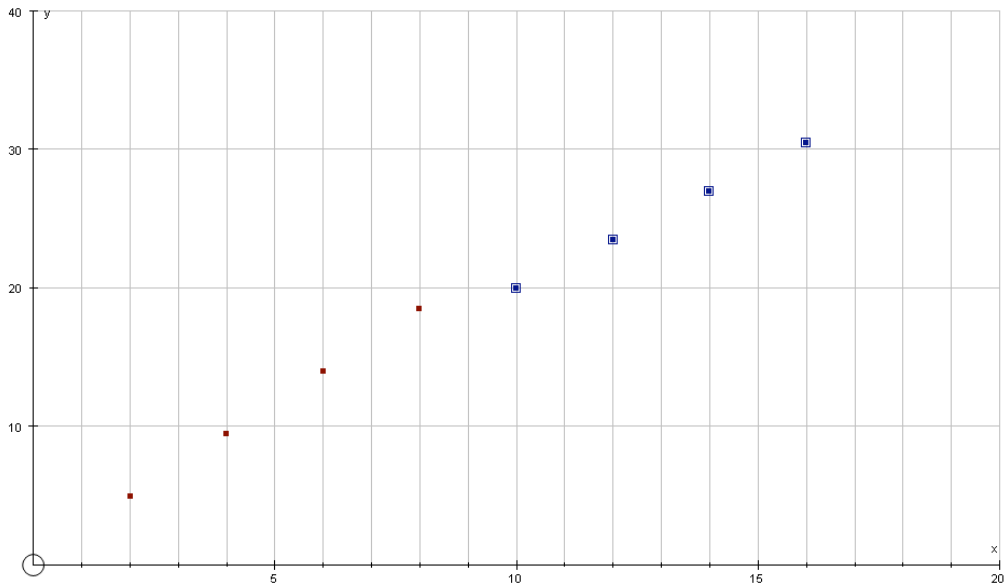
## IB Studies Paper 1 Practice Tests

1. a) 12  
b) -1  
c) -6
2. a) New York  
b) 81  
c) New York, 31.5
3.  $y = 7x - 9$
4.  $41.1^\circ$  and  $138.9^\circ$ .
5.  $x - 3y - 5 = 0$
6.  $x = -3, y = 2$
7. a)  $9.65 \times 10^{-4}$   
b)  $7.26 \times 10^{13}$

8. a)

$x$	2	4	6	8	10	12	14	16
$C$	5	9.5	<b>14</b>	18.5	<b>20</b>	23.50	<b>27</b>	30.5

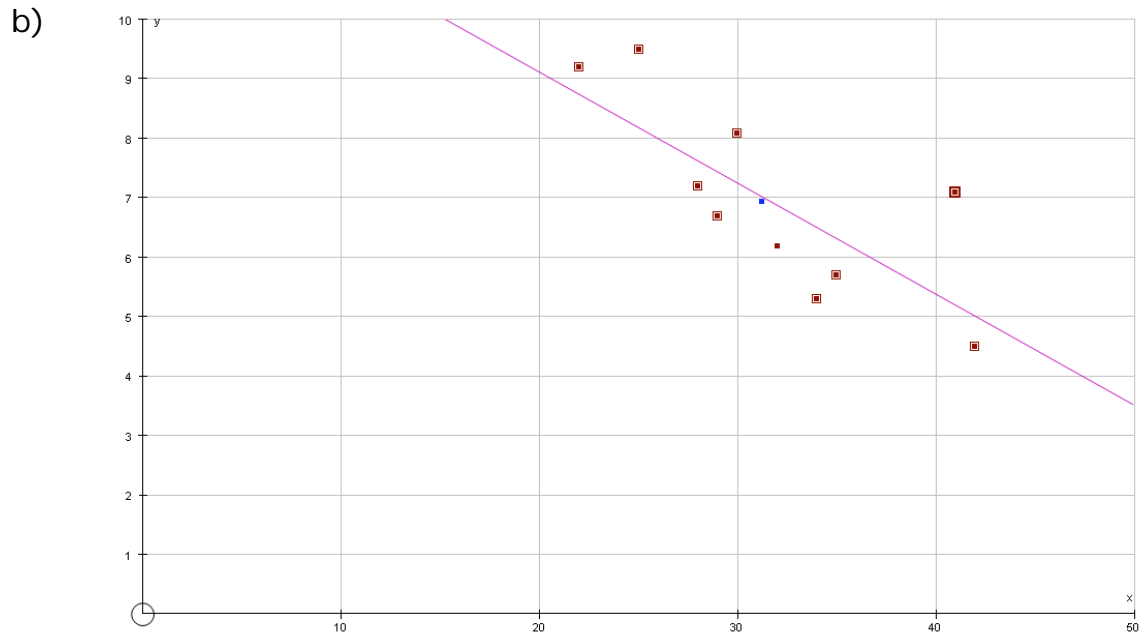
b)



c) \$28

9. a) i) If a shape is not a rectangle then it is not a parallelogram.  
 ii) If a shape is not a parallelogram then it is not a rectangle.  
 iii) If it is a rectangle then it is a parallelogram.
- b) Statement ii)

10. a)  $\bar{x} = 31.8, \bar{y} = 6.95$



c) Approx. 6.5

11. a)  $a = -2, b = -1$

b)  $y = -3$

12. a) \$3333.33

b) \$1 = 0.58 pounds  
1 pound = \$1.72

13. a) 8

b)  $\frac{1}{8}$

c)  $\frac{1}{4}$

d)  $\frac{1}{2}$

## Paper C

## IB Studies Paper 1 Practice Tests

14. a) \$1620

b)  $n=46$

15. a) 48

b) 24 approx.

c) 52