

1. The Space Shuttle can travel at an average cruising speed of 36000 km h^{-1} .
- a) How many kilometers does the Space Shuttle travel in 1 day?
 - b) Express your answer to part a)
 - i) correct to 2 significant figures,
 - ii) in the form $a \times 10^k$, where $1 \leq a \leq 10$.

Answers:

a)

b) i).....

b) ii).....

2. A triangle has vertices $A(0,4)$, $B(3,6)$, and $C(5,2)$.

Find the area of the triangle ABC .

Answer:

.....

3. a) Factorise the expression $3x^2 + 13x - 10$.
b) Hence solve the equation $3x^2 + 13x = 10$.

Answers:

a)

b)

4. An aeroplane is to begin its descent to a runway. It will start by moving from a coordinate of (500, 300, 400) to a new position of (200, 100, 100). Halfway through this part of the descent the aeroplane is at position M. Assuming the aeroplane is travelling at constant speed find,

- a) the coordinates of M,
b) the distance from where the aeroplane starts its descent to the position M.

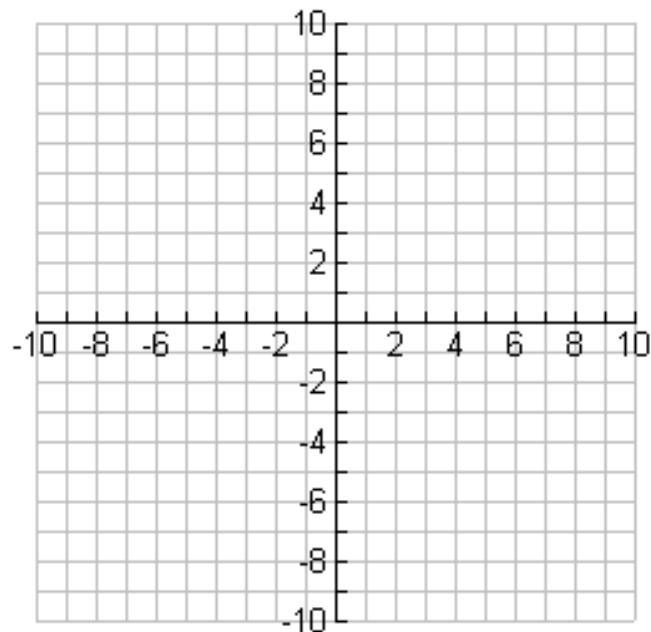
Answers:

a)

b)

5. The equation of a line l_1 is $y = 2x - 3$.

a) On the grid, draw and label the line l_1 .



b) A line l_2 is perpendicular to l_1 . Find the gradient of l_2 .

c) The line l_2 cuts the y -axis at $(0,3)$. Draw and label the line l_2 on the grid above.

b)

6. The first four terms of an arithmetic sequence are shown below.

7, 10, 13, 16,

- a) Write down the n^{th} term of the sequence.
- b) Calculate the 50th term of the sequence.
- c) Find the sum of the first 50 terms of the sequence.

Answers:

a)

b)

c)

7. Two propositions p and q are defined as follows:

p : Homer eats donuts.

q : Homer is overweight.

- a) Write in symbolic form: If Homer does not eat donuts then he will not be overweight.
- b) Complete the following truth table for the logic statement $\neg(p \wedge q)$.

p	q	$p \wedge q$	$\neg(p \wedge q)$
T	T		
T	F		
F	T		
F	F		

a)

8. The table below shows the Gringott's Bank exchange rate for 1 Grock.

EXCHANGE RATES		
	Bank buys	Bank sells
Green-blacks	5.59	5.29
Drachet	145.00	135.00
Marbles	0.75	0.72
NO COMMISSION CHARGED		

- a) Use the bank-selling price to find out how many Drachet Hermonie will receive when she exchanges 300 Grocks.
- b) Hermonie and her friend Harriet spent 38000 Drachet and then exchanged the money back to Grocks. How many Grocks did they receive? Give your answer to 2 decimal places.
- c) Ron has 150 Green-blacks and 40 Marbles. Calculate how many Grocks the bank will give him when he exchanges his money.

Answers:

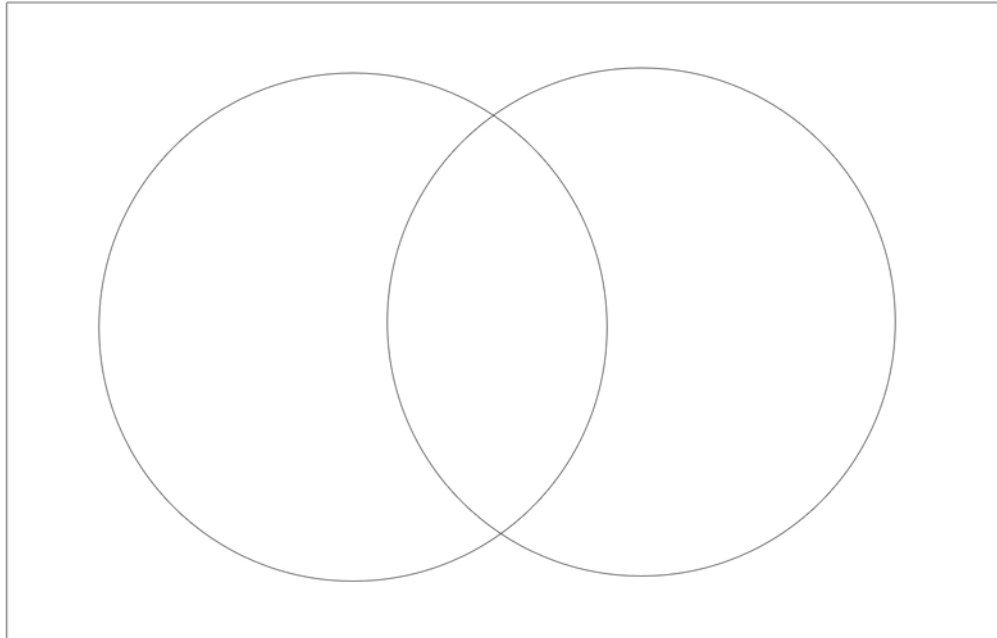
a)

b)

c)

9. In a school the probability that a student takes chemistry is 0.7. The probability that a student takes English is 0.4. The probability of the student not doing either of the subjects is 0.18.

a) Show this information in the Venn diagram below.

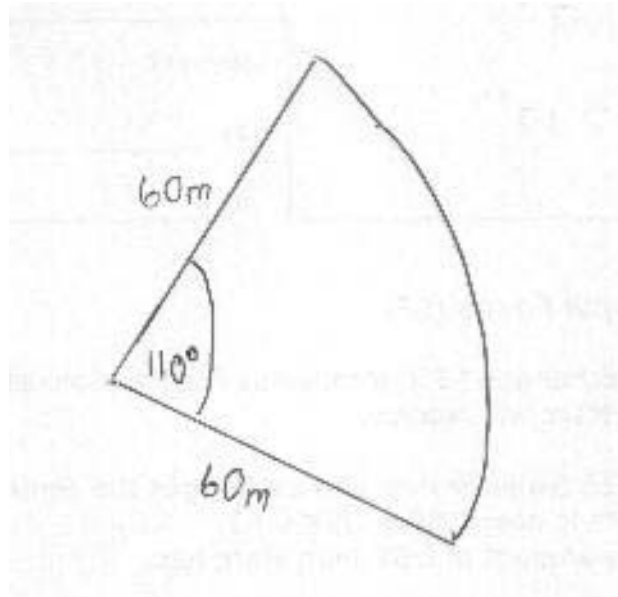


- b) Determination whether the choices of English and Chemistry are independent. Show all your working out.

Answers:

b)

10. A school discuss area is to be marked out for a sports day. A diagram of the area is drawn below.



- Calculate the area to be used.
- Rather than using a sector of a circle, a line is to be made joining the end's of the radii in the diagram above. The new shape is a triangle. Find the area of this triangle.
- Find the length of the line that is to be drawn connecting the two radii.

Answers:

a)

b)

c)

11. An opinion poll in the small country of Ettonia to find out who will receive the most votes in the next election between the two parties, the Democrats and the Reds. The results are split between two age groups, 30 and under and over 30s. These results are shown in the table below.

	Democrats	Reds	Totals
30 and under	120		
Over 30s			300
Totals	290		500

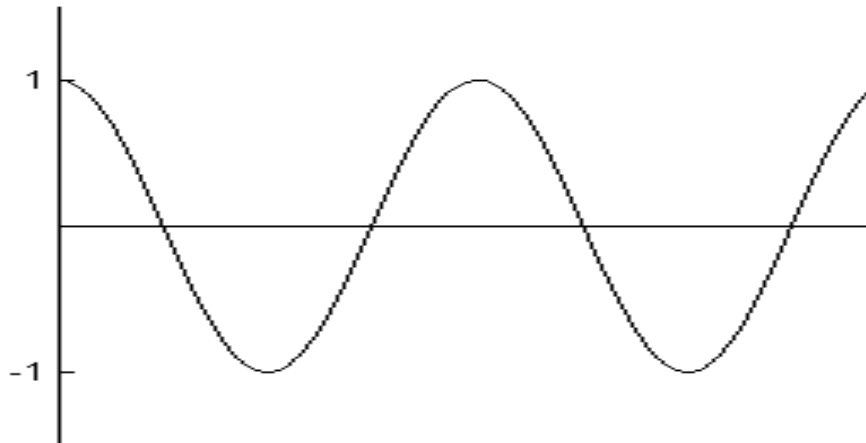
- a) Complete the table above.
- b) Using the table, or otherwise, calculate the probability of an over 30 voting for the Red party.
- c) Given that the person is going to vote for the Democrats, calculate the probability of the voter being over 30.

Answers:

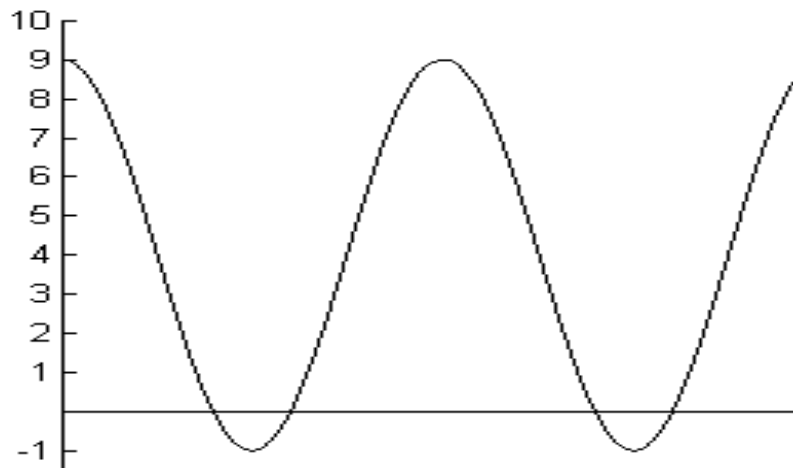
b)

c)

12. The diagram below shows $y = \cos(ax)$.



The diagram below shows the curve $y = p + k \cos(ax)$.



Find the value of p and k .

Answer:

.....

13. Billie invests $\$X$ in the bank for 1 year. She receives 12% interest **per annum** compounded **monthly**.
- a) Write an expression, in terms of X , to show the value of her investment at the end of 1 year (12 full months).
 - b) How many full months will it take for Billie's money to double?

Answers:

a)

b)

14. When Jocky and Eric play darts it is known that Jocky can hit the Bullseye with a probability of 0.65 and Eric can hit the Bullseye with a probability of 0.5.
- a) Find the probability of Jocky and Eric both hitting the Bullseye.
 - b) Find the probability of Jocky and Eric both missing the Bullseye.
 - c) Find the probability of either Jocky or Eric both hitting the Bullseye, but not both of them.

Answers:

a)

b)

c)

15. The table below shows the heights of 100 plants.

Height (h) in centimetres	$0 < h \leq 3$	$3 < h \leq 6$	$6 < h \leq 9$	$9 < h \leq 12$	$12 < h \leq$	$15 < h \leq$	$18 < h \leq$	$21 < h \leq$
					15	18	21	24
Number of plants	5	7	12	20	23	18	10	5

- a) State the modal class.
- b) Find the class in which the median lies.
- c) Calculate an estimate of the mean height the plants.

Answers:

a)

b)

c)

Paper B

IB Studies Paper 1 Practice Tests

1. a) 86400 km

b) i) 860000 km

ii) 8.6×10^5

2. 8 units²

3. a) $(3x - 2)(x + 5)$

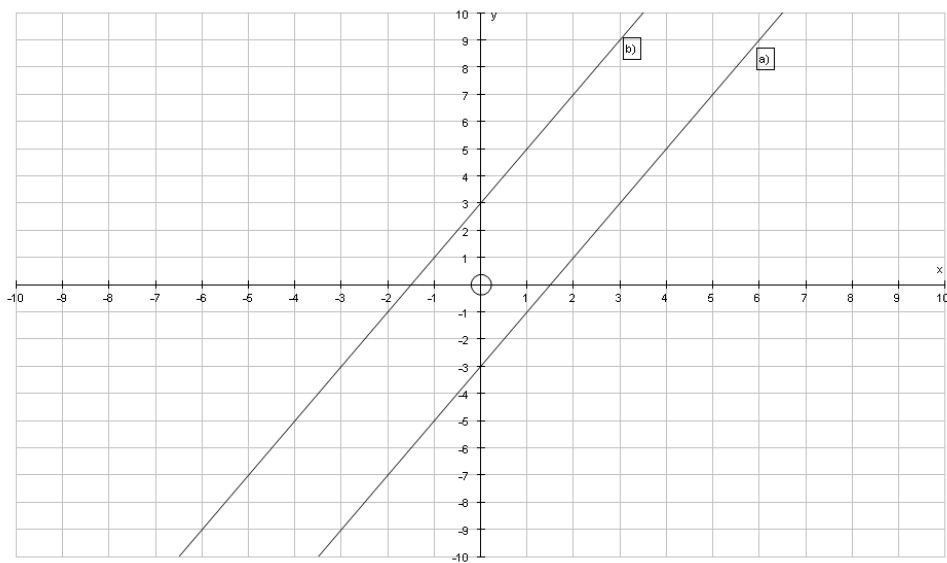
b) $x = \frac{2}{3}$ and $x = -5$

4. a) (350,200,250)

b) 234.52

5. a)

c)



b) 2

6. a) $3n + 4$

b) 154

c) 4025

Paper B

IB Studies Paper 1 Practice Tests

7. a) $\neg p \Rightarrow \neg q$

b)

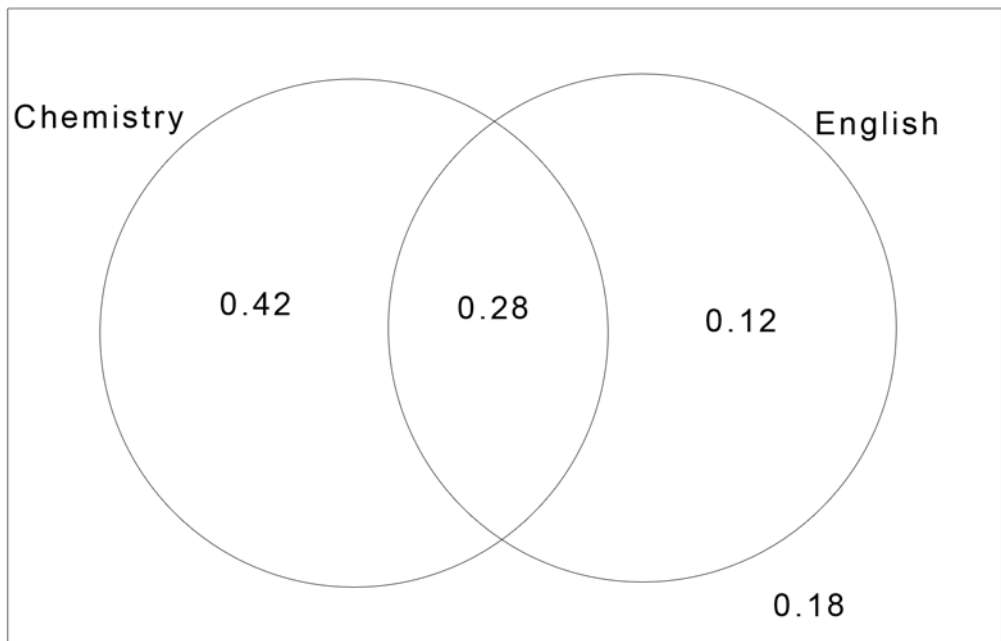
p	q	$p \wedge q$	$\neg(p \wedge q)$
T	T	T	F
T	F	F	T
F	T	F	T
F	F	F	T

8. a) 40500

b) 17.24

c) 80.17

9. a)



b) $P(C \cap E) = 0.28$ and $P(C)P(E) = 0.28$, therefore they are independent.

Paper B

IB Studies Paper 1 Practice Tests

10. a) 3455.75 m²
 b) 1691.44
 c) 98.3

11. a)

	Democrats	Reds	Totals
30 and under	120	80	200
Over 30s	170	130	300
Totals	290	210	500

- b) $\frac{130}{500} = \frac{13}{50}$
 c) $\frac{170}{290} = \frac{17}{29}$
 12. $p = 3, k = 4$
 13. a) $x(1.01)^{12}$
 b) $n=69,70$
 14. a) 0.325
 b) 0.175
 c) 0.5
 15 a) $12 < h \leq 15$
 b) $12 < h \leq 15$
 c) 12.54