

1. Ten students final Maths and Physics IB Higher grade percentages were recorded. The results are shown in the table below.

Student	Maths Score (x)	Physics Score (y)
1	65	61
2	52	59
3	89	76
4	74	81
5	35	46
6	58	57
7	71	53
8	67	39
9	62	76
10	48	49

- a) Given that $S_x = 14.24$, $S_y = 13.30$ and $S_{xy} = 107.33$, find the correlation coefficient r , giving your answer to two decimal places.
- b) Describe the correlation that exists between the Maths and Physics marks.

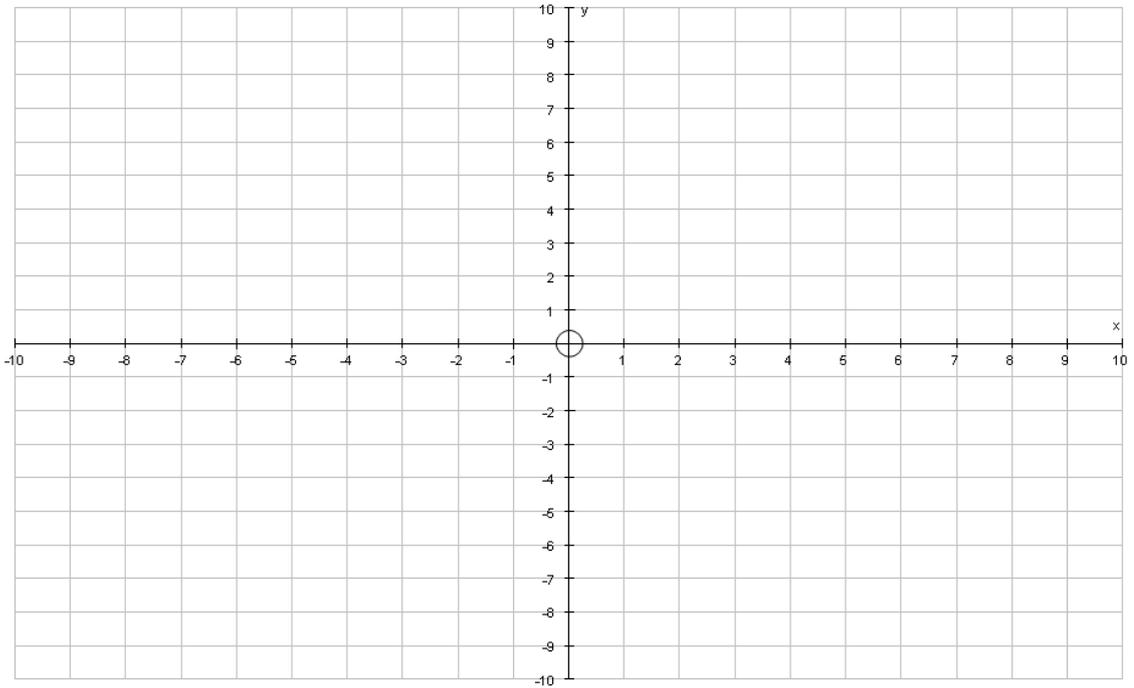
Answers:

a)

b)

2. The equation of a straight line is given as $l_1: y = 2x$.

a) Draw this straight line on the graph below.



- b) The another straight line, l_2 , has the same gradient as l_1 , but passes through the y -axis at the point $(0,3)$. Find the equation of this straight line.
- c) What is the geometrical relationship between l_1 and l_2 ?
- d) Draw the line l_2 on the diagram above.

Answers:

b)

c)

3. The first 4 terms of an arithmetic sequence are,

7, 11, 15, 19,

- a) Find the n th term of this sequence.
- b) Find the 50th term of this sequence.
- c) Find the sum of the first 50 terms.

Answers:

a)

b)

c)

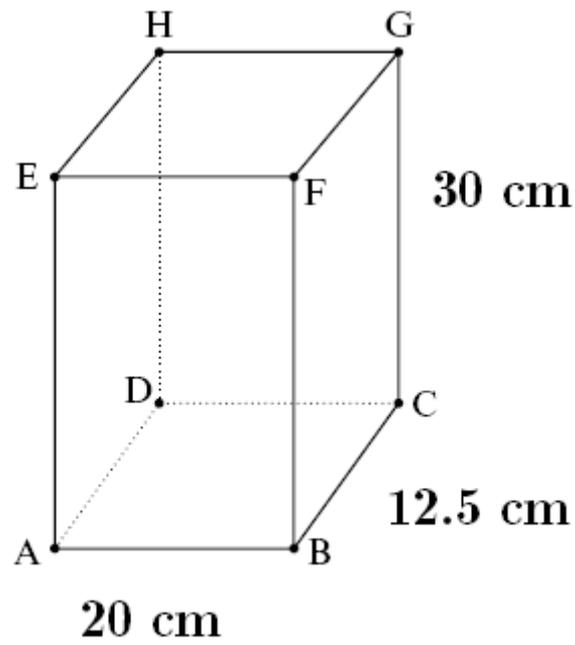
- 4. a) Factorise $3x^2 - 10x + 3$
- b) Hence solve the equation $3x^2 - 10x + 6 = 3$.

Answers:

a)

b)

5. The diagram shows a cuboid that measures 30 cm x 20 cm x 12.5 cm.



- Find the length of BD .
- Find the length of BH .

Answers:

a)

b)

6. Find the equation of the tangent to the curve $y = x^3 - 2x^2 + 3$ at the point (2, 3).

Answer:

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7. Ahmed invests \$10000 in a bank that offers him 7.5% interest.
- a) Calculate the value of Ahmed's investment after 18 months.
 - b) Calculate how many years it will take for Ahmed's investment to double. Give your answer to the nearest year.

Answers:

a)

b)

8. The table below shows the number of passengers' 40 Cairo taxis.

Passengers	Frequency
0	7
1	8
2	13
3	9
4	3

- Find the probability of picking a taxi with no passengers in it.
- Find the probability of picking a taxi with more than 2 passengers in it.
- Given that the number of passengers in a taxi is less than 3, find the probability that a taxi has no passengers.

Answers:

a)

b)

c)

9. The towns of Camberwick and Trumpton are to be joined by a road. Camberwick is 30 metres above sea level and Trumpton is 120 metres above sea level.

The engineer that is designing the road draws a diagram on a grid and gives Camberwick the coordinate (0, 30) and Trumpton the coordinate (900, 120). Each unit represents 1 metre.

- a) The town of Chigley is exactly halfway on the road between Camberwick and Trumpton. Find the coordinates of Chigley.
- b) Find the distance between Camberwick and Chigley.

Answers:

a)

b)

10. Let $x = 2.5 \times 10^8$ and $y = 9.3 \times 10^{-7}$.

Find

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

b) xy

give your answers in the form $a \times 10^k$, where $1 \leq a \leq 10$.

Answers:

a)

b)

11. Two propositions are defined as follows:

p : Louis plays the trumpet

q : Louis is part of the school band.

Write in symbolic form the following statements:

- a) Louis plays trumpet and is in the school band.
- b) If Louis plays the trumpet then he is in the school band.
- c) Write a statement that describes the proposition,

$$\neg q \Rightarrow \neg p$$

Answers:

a)

b)

c)

12. The table below shows the amount of money spent by 100 students in a week.

Money (\$)	0 – 10	11 – 20	21 – 30	31 – 40	41 – 50	51 – 60
Students	5	28	43	14	6	4

- Find the class in which the median lies.
- Calculate an estimate of the mean amount spent by a student in a week.

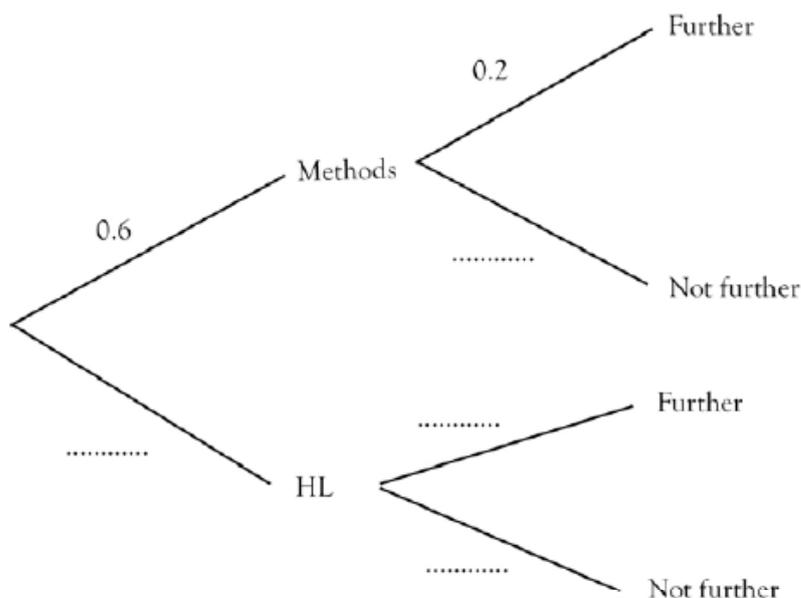
Answers:

a)

b)

13. A student chooses between Methods and Maths HL only. The probability of choosing Methods is 0.6. If the student chooses Methods the probability of he/she choosing Further Maths is 0.2. If the student chooses Maths HL the probability of choosing Further Maths is 0.5.

a) Complete the following tree diagram.



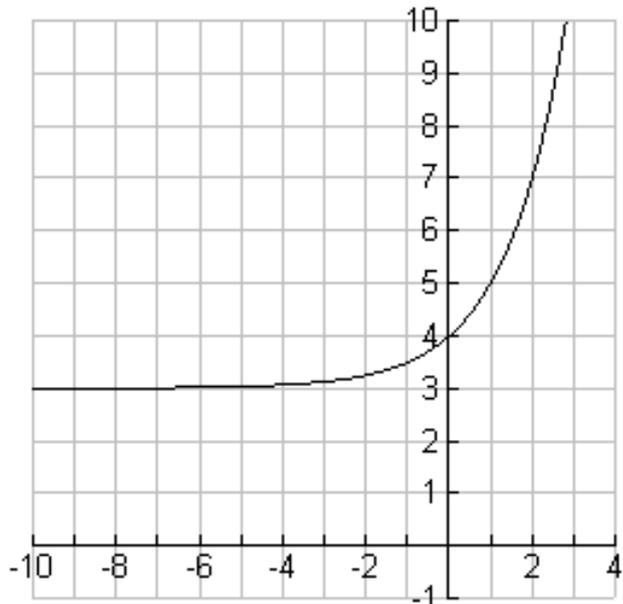
- b) Calculate the probability of a student choosing to do Further Maths.
- c) Given that the student chooses Further Maths, what is the probability that the student has chosen Methods?

Answers:

b)

c)

14. The diagram below shows the curve $y = a^x + b$.



- a) The coordinate of the curve where it crosses the y -axis is $(0, P)$. Find the value of P .
- b) Use the graph to find the value of a in the equation.
- c) As x becomes a large negative number explain what happens to the curve.

Answers:

a)

b)

c)

15. The table below shows the amount of money \$1 can buy.

Currency
35 Baht
3.8 Malaysian R

- 1000 baht is worth how many \$?
- Susie changes \$500 into Malaysian R, but pays 1.75% in commission. Calculate the amount of money she receives in Malaysian R. Give your answer to the nearest Malaysian R.
- Mannie buys a car for 225,000 baht and pays in \$. How much, to the nearest \$ does the car cost him?

Answers:

a)

b)

c)

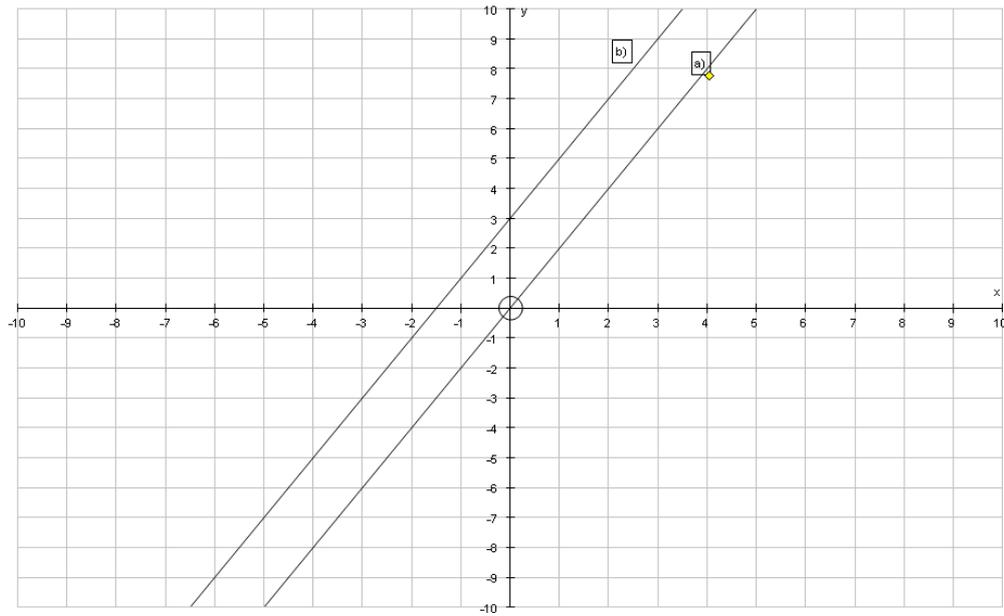
Paper D

IB Studies Paper 1 Practice Tests

1. a) $r=0.567$

b) This is a moderate correlation between physics and maths scores.

2. a)
and d)



b) $y = 2x + 3$

c) The lines are parallel.

3. a) $4n + 3$

b) 203

c) 5250

4. a) $(x - 3)(3x - 1)$

b) $x = 3$ and $x = \frac{1}{3}$.

5. a) 23.6

b) 38.16

6. $y = 4x - 5$

Paper D

IB Studies Paper 1 Practice Tests

7. a) \$11146

b) $n=10$

8. a) $\frac{7}{40}$

b) $\frac{3}{10}$

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

9. a) (450,45)

b) 904.5 km

10. a) 3.72×10^{-15}

b) 2.325×10^2

11. a) $p \wedge q$

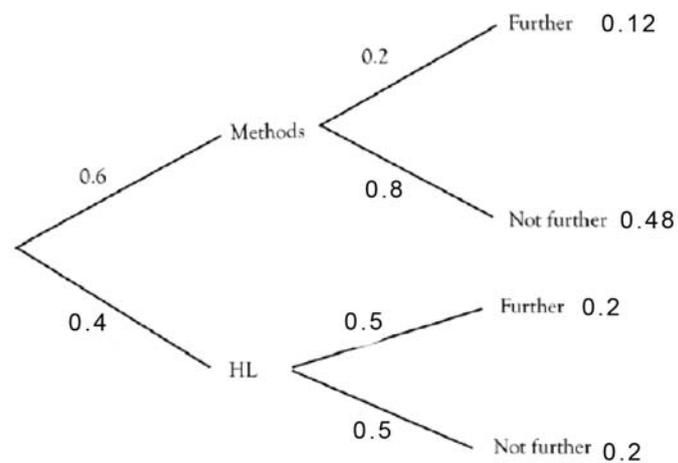
b) $p \Rightarrow q$

c) If Louis is not in the school band then he does not play the trumpet.

12. a) 21-30

b) 25.5

13. a)



b) 0.32

c) 0.375 or $\frac{3}{8}$

14. a) 4

b) 1

c) The graph tends towards the line $y=3$.

15. a) \$28.57

b) 1866.75 R

c) \$5921