

After Test Assignment

DUE MONDAY
with your HW packet

NAME _____

These problems, as with previous "After Test" assignments, came from the May 2019 IB Math Studies exam, Paper 1 questions. (Did you know there are November IB exams?)

As you do these problems, refer back to your notes and formula sheet and possibly your notation sheet.

A

- 4 -

M19/5/MATSD/SP1/ENG/TZ1/XX

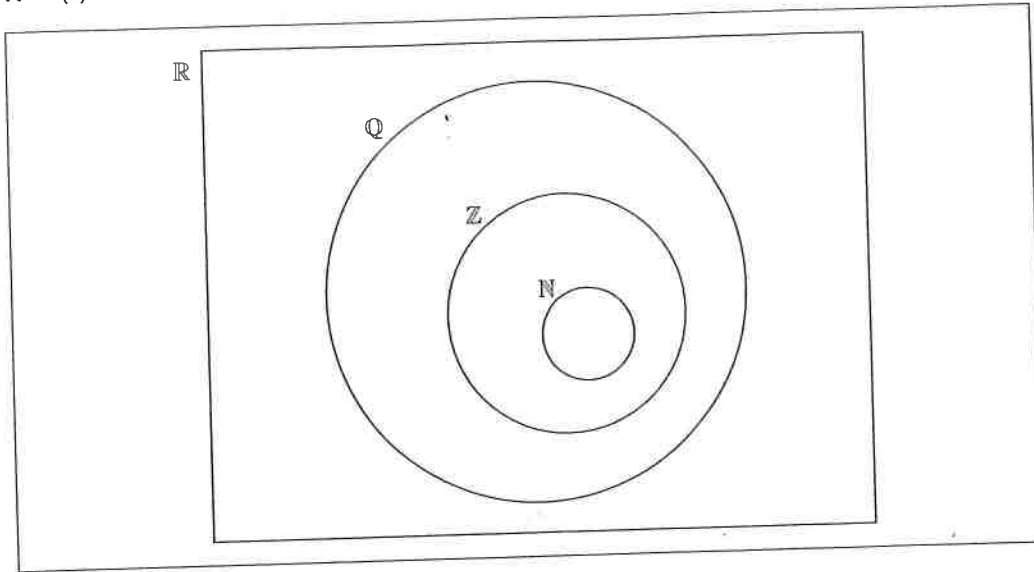
2. The fastest recorded speeds of eight animals are shown in the following table.

Animal	Speed (km h^{-1})
Golden eagle	300
Swordfish	97
Hare	80
Lion	80
Horse	71
Zebra	64
Komodo dragon	21
Tiger beetle	6

- (a) State whether **speed** is a continuous or discrete variable. [1]
- (b) Write down the median speed for these animals. [1]
- (c) Write down the range of the animal speeds. [1]
- (d) For these eight animals
- (i) find the mean speed;
 - (ii) write down the standard deviation. [3]

B

7. (a) Place the numbers 2π , -5 , 3^{-1} and $2^{\frac{3}{2}}$ in the correct position on the Venn diagram. [4]



- (b) In the table indicate which **two** of the given statements are true by placing a tick (\checkmark) in the right hand column. [2]

Look at your notation sheet \rightarrow

Statement	True
$Z \subset Q$	
$N \subset Q'$	
$N \cap Z = N$	
$Q \cup R = Z'$	

C

5. A florist sells bouquets of roses. The florist recorded, in **Table 1**, the number of roses in each bouquet sold to customers.

Table 1

Number of roses in a bouquet (n)	2	3	4	5	6	7	8	9	10	11	12
Number of customers (f)	9	2	4	5	7	3	10	2	3	1	4

The roses can be arranged into bouquets of size small, medium or large. The data from **Table 1** has been organized into a cumulative frequency table, **Table 2**.

Table 2

Bouquet size	Number of roses (n)	Frequency (f)	Cumulative frequency
small	$2 \leq n \leq 4$	15	
medium	$5 \leq n \leq 8$	25	
large	$9 \leq n \leq 12$		

- (a) Complete the cumulative frequency table. [2]
 (b) Write down the probability that a bouquet of roses sold is **not** small. [2]

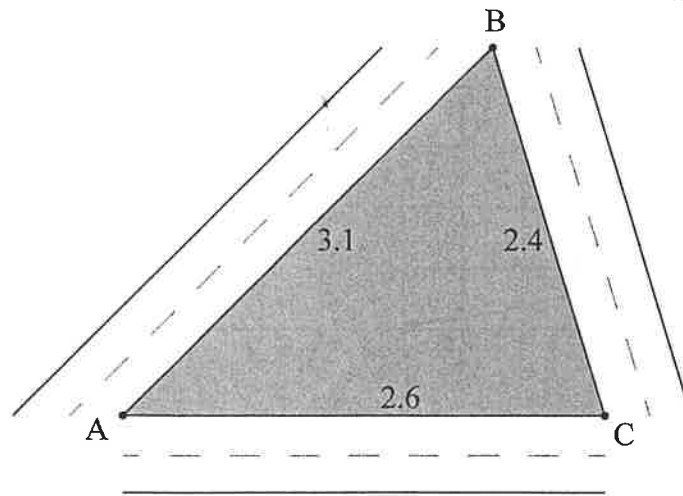
A customer buys a large bouquet.

- (c) Find the probability that there are 12 roses in this bouquet. [2]

10. Three airport runways intersect to form a triangle, ABC. The length of AB is 3.1 km, AC is 2.6 km, and BC is 2.4 km.

D

diagram not to scale



A company is hired to cut the grass that grows in triangle ABC, but they need to know the area.

- (a) Find the size, in degrees, of angle \hat{BAC} . [3]
- (b) Find the area, in km^2 , of triangle ABC. [3]

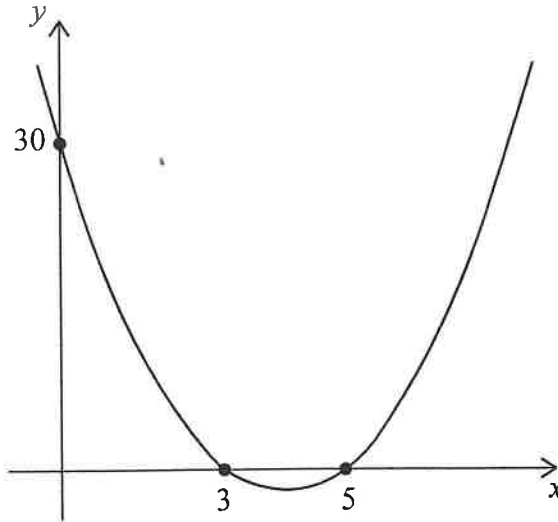
Working:

Answers:

- (a)
- (b)

E

13. The graph of a quadratic function is shown.



- (a) Find the equation of the quadratic function in the form $y = ax^2 + bx + 30$. [4]
- (b) Write down the equation of the axis of symmetry. [2]

Working:

Answers:

- (a)
- (b)