Question 1: Natural Numbers. (10 minutes)

a) Look at the list of numbers given below

-6, 3, 4, 9, 13, 15, 23, 25, 28, 64

From the list, choose

<table>
<thead>
<tr>
<th>An even number</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>An odd number</td>
<td></td>
</tr>
<tr>
<td>Two prime number</td>
<td></td>
</tr>
<tr>
<td>An integer</td>
<td></td>
</tr>
<tr>
<td>A number that is divisible by 5</td>
<td></td>
</tr>
<tr>
<td>A number that is a factor of 81</td>
<td></td>
</tr>
</tbody>
</table>

b) Find the value of 3 x (3+4) - 2²

Answer: ___________________

(7-3) x 4 + 16 ÷ 8

Answer: ___________________

c) What is the lowest common multiple of 6 and 9?

Answer: ___________________

d) A cinema has 13 rows of seats. The rows are numbered from 1 to 13. Odd-numbered rows have 18 seats. Even-numbered rows have 20 seats. How many seats are in the cinema?

Answer: ________________
Question 2: Presenting data (10 minutes)

a) Here are the ages, in years, of some members of a swimming club.

9  12  18  10  9  7  21  30  23  16
19  32  17  28  15  8  10  15  21  10

Draw an ordered stem and leaf diagram for these ages. You must include a key.

0
1
2
3

Key:

What age is the youngest swimmer? _____________

How many members are in the club? ____________

What fraction of the swimmers were aged between 0-11 years? ___

b) A children’s shoe shop took a survey of their customers shoe size over one day. Here is a list of their responses.

4  2  2  2  1  3  1
2  2  3  4  1  2  3
2  2  1  1  3  1  3
5  1  2  3  4  2  1

Use the list above to complete the TALLY table:

<table>
<thead>
<tr>
<th>Shoe Size</th>
<th>TALLY</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Size 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Size 5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Draw arrows from set $M$ to set $N$ to show the relation "is equal to".

![Venn diagram](image)

c)
d)

The sets $A$ and $B$ are shown in the diagram below.

![Venn diagram](image)

Fill in the elements of the following two sets.

(i) $A = \{ \ldots, \ldots, \ldots, \ldots \}$

(ii) $A \cap B = \{ \ldots \}$
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Question 3: Measurement and Area (10 minutes)

When the Irish rugby team played in Croke Park, a rugby pitch was made inside the GAA pitch. The GAA pitch was 145 m long and 90 m wide. The rugby pitch was 120 m long and 70 m wide.

(a) Find the area of each pitch.

<table>
<thead>
<tr>
<th>Area of GAA pitch:</th>
<th>Area of rugby pitch:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(b) What area of the GAA pitch was not used for rugby?

<p>| |</p>
<table>
<thead>
<tr>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

(c) Convert 3.8 km to m. Answer:__________________

Convert 20 cm to km Answer:__________________
Question 4: Geometry (10 min)

(a) Four angles are shown below. Write in the space below each diagram whether the angle is straight, acute, obtuse, right or reflex.

(b) In the diagram below $l_1 \parallel l_2$. Write the measure of each angle shown by an empty box into the diagram, without using a protractor.
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Question 5: Probability and Proportions (10 min)

(i) Estimate the probability for each of the events A, B, C, D, and E listed below, and write your answers into the table.

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>A name is picked at random from a list of 50 girls and 50 boys.</td>
<td></td>
</tr>
<tr>
<td>A = A girl’s name is picked.</td>
<td></td>
</tr>
<tr>
<td>A fair coin is tossed once.</td>
<td></td>
</tr>
<tr>
<td>B = A head is the outcome.</td>
<td></td>
</tr>
<tr>
<td>One card is drawn at random from a pack of playing cards.</td>
<td></td>
</tr>
<tr>
<td>C = The card is a diamond.</td>
<td></td>
</tr>
<tr>
<td>A day is chosen at random from a list of the days of the week.</td>
<td></td>
</tr>
<tr>
<td>D = The name of the day contains the letter a.</td>
<td></td>
</tr>
<tr>
<td>One number is picked at random from the set {1, 2, 3, 4, 5, 7, 11, 13}.</td>
<td></td>
</tr>
<tr>
<td>E = The number chosen is a prime number.</td>
<td></td>
</tr>
</tbody>
</table>

(ii) Place the letter for each of the events at the most appropriate position on the probability scale below.

\[0 \quad 0.5 \quad 1\]

(iii) Write down another event that you think has a probability similar to that of C in the table above.

(iv) Write down another event that you think has a probability similar to that of D in the table above.
a) Simplify \( 6x - xy + 5x - 7xy \)

   Answer: ___________

b) If \( a = 4 \) and \( b = 2 \)

   Find the value of \( 6a - 2ab \)

   Answer: __________

c) Find the value of \( x \):

   \( 5x + 2 = 4x + 8 \)

d) Remove the brackets:

   \( 2(x + 4) - 3(x - 4) \)

   Answer: _______________

e) Multiply out the brackets and simplify:

   \( (5x - 2)(4x + 3) \)  Answer: ____________________
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Question 7: Percentages.

a) First, write the percentages as fractions. Then, calculate the percentage of each number.

i) 20% of 60

ii) 90% of 1200

iii) 60% of 25

b) Shop B offers \(\frac{1}{4}\) off the usual price of the bike. Fill in the table to show the “special offer” price of the bike in this shop.

<table>
<thead>
<tr>
<th>Usual Price:</th>
<th>€320</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Special offer” price:</td>
<td></td>
</tr>
</tbody>
</table>

c) Daniel wants to buy a bike. The usual price of the bike is €320. The bike is on “special offer” in three different shops.

(a) Shop A offers 10% off the usual price of the bike. Fill in the table to show the “special offer” price of the bike in this shop.

<table>
<thead>
<tr>
<th>Usual Price:</th>
<th>€320</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Special offer” price:</td>
<td></td>
</tr>
</tbody>
</table>

d) In Shop C, Daniel can pay €60 now, plus €20 at the end of each month for 12 months. Fill in the table to show the “special offer” price of the bike in this shop.

<table>
<thead>
<tr>
<th>Usual Price:</th>
<th>€320</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Special offer” price:</td>
<td></td>
</tr>
</tbody>
</table>
Question 8: Co-ordinates (10 minutes)

A computer game shows the location of four flowers $A(1, 7)$, $B(1, 2)$, $C(6, 2)$, and $D(5, 6)$ on a grid. The object of the game is to collect all the nectar from the flowers in the shortest time.

(i) A bee found a hidden flower halfway between flower $B$ and flower $D$. Find the co-ordinates of this hidden flower.
What is primary data?
________________________________________________________
________________________________________________________

What is secondary data?
________________________________________________________
________________________________________________________

What is discrete data?
________________________________________________________
________________________________________________________

What is continuous data?
________________________________________________________
________________________________________________________

What is categorical data?
________________________________________________________
________________________________________________________

b) A new variety of soup “Tayto Cheese and Onion”, is to be launched by a leading manufacturer. They wish to know if it will be popular and sell well. People are asked to try a free sample and comment on their impression. Write unbiased questions for your questionnaire. State where you will carry out your research.