1) **Linear Relations (SECTION 1) - Circle either a.) or b.)**

a.) This graph shows information about last year’s total cost for a banquet for \( n \) students.

![Graph of Total Cost vs. Number of Students](image)

This year the cost per person has decreased by $5, but the initial fee has doubled. Determine an equation to represent total cost, \( C \), for this year.

\[ C = \text{______________________________} \]

Show your work.

b.) **Getting Fit**

Maddie enrolls in a fitness program. Her total cost is made up of a sign-up fee and a cost per class. The table below shows information about her total cost, \( C \), in dollars, when she attends \( n \) classes.

<table>
<thead>
<tr>
<th>Number of classes, ( n )</th>
<th>Total cost, ( C ) ($)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>67</td>
</tr>
<tr>
<td>14</td>
<td>74</td>
</tr>
</tbody>
</table>

What is the sign-up fee?

Sign-up fee: __________________________

Show your work. Is the relationship between the number of classes Maddie attends and her total cost a partial variation or direct variation?

Circle one: Partial variation Direct variation

Justify your answer.
2) **Number Sense and Algebra (SECTION 2) - Circle either a.) or b.)**

**a.** A park in the shape of a rectangle is pictured with algebraic expressions representing its length and width, in metres.

![Diagram of a rectangle with algebraic expressions for length and width]

The perimeter of the park, \( P \), can be determined using the equation

\[ P = 2l + 2w. \]

Determine an equation to represent the perimeter of the park using the given sides.

\[ P = \ldots \]

The perimeter of the park is 350 m.

Determine the length of the park. Show your work.

**b.**

**Floored Areas**

The diagram of the floor shown below has algebraic expressions for the lengths of its sides, in metres.

![Diagram of a floor with algebraic expressions for side lengths]

Determine an unsimplified expression for the total area of the floor, \( A \), in m\(^2\).

\[ A = \ldots \]

Simplify your expression fully. Show your work.
3) Measurement and Geometry (SECTION 3) - Circle either a.) or b.)

a.) A triangle is pictured below with the length of its base labelled.

The area of the triangle is 123 cm².
Determine the height of the triangle.
Show your work.

b.) Look at the following diagram.

Complete the chart below with the values of x and y. Justify your answers using geometric properties.

<table>
<thead>
<tr>
<th>Value</th>
<th>Justification using geometric properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>$x =$</td>
<td></td>
</tr>
<tr>
<td>$y =$</td>
<td></td>
</tr>
</tbody>
</table>
4) Analytic Geometry (SECTION 4) - Circle either a.) or b.)

a.) Saving on Apples

Janice and Irene buy apples at different stores. Both stores sell apples by the kilogram.

• Janice pays $6.00 for 3.75 kg of apples.
• Irene pays $5.25 for 3 kg of apples.

How much more will Irene pay than Janice if they had each bought 9 kg of apples?

Show your work.

b.) Hamburgers and Hot Dogs

At a local event, the ratio of hamburgers to hot dogs sold is 5:3.

The number of hamburgers sold is 275.

How many more hamburgers than hot dogs are sold?

Show your work.

There are __________ more hamburgers than hot dogs sold.