ADDITIONAL MATERIALS
A pencil, calculator, ruler, protractor and a pair of compasses will be required for this paper.

INSTRUCTIONS TO CANDIDATES
Use black ink or black ball-point pen.
Write your name, centre number and candidate number in the spaces at the top of this page.
Answer all the questions in the spaces provided.
Take \( \pi \) as 3·14 or use the \( \pi \) button on your calculator.

INFORMATION FOR CANDIDATES
You should give details of your method of solution when appropriate.
Unless stated, diagrams are not drawn to scale.
Scale drawing solutions will not be acceptable where you are asked to calculate.
The number of marks is given in brackets at the end of each question or part-question.
1. Four hockey teams, Northpark, Eastpool, Southside and Westpoint, take part in a tournament. Each team plays every other team both at home and away.

Teams gain:
- 3 points for a win
- 1 point for a draw
- 0 points for a loss.

The team with the greatest number of points will win the tournament.

Give an example of how a team could gain exactly 4 points from their first 4 matches. [1]

If two teams have the same points, the higher placed team will be the team with the greater goal difference.
The goal difference for a team is found by taking the goals scored by that team and subtracting the goals scored against them.
The goal difference can be a positive number or a negative number.

The table below shows the positions of the teams after playing 5 matches.
At the moment, Eastpool are the leaders with 8 points and a goal difference of +3.

Complete the points gained and the goal difference for the other three teams after playing 5 matches. [4]
The final two matches were:

Eastpool v Westpoint
Southside v Northpark

Using the information in both tables, find the possible results of these two matches and complete the final table.
Check each entry in your completed table with your results for the two matches.

<table>
<thead>
<tr>
<th>Team</th>
<th>Played</th>
<th>Win</th>
<th>Draw</th>
<th>Lose</th>
<th>Goals scored</th>
<th>Goals against</th>
<th>Goal difference</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Westpoint</td>
<td>6</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>+3</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Southside</td>
<td>6</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>-3</td>
<td>6</td>
<td></td>
</tr>
</tbody>
</table>

Space for working

- Eastpool v Westpoint
- Southside v Northpark
2. Information about Richard’s travel to and from work.

- Richard travels 24 miles to work every day from Monday to Friday.
- Richard travels home along the same route as he takes to work.
- On Monday morning, Richard left home at 08:20 and travelled to work at an average speed of 40 miles per hour.
- The fuel for Richard’s car costs 121.9 pence per litre.
- On his way to work, Richard usually listens to BBC Radio 2.
- On Tuesday morning, Richard left home at 08:00, and travelled to work at an average speed of 48 miles per hour.
- 1 gallon is approximately 4.55 litres.
- Richard notices that if he leaves home after 08:15 then he usually gets caught up in rush-hour traffic.
- Richard is paid £8,500 for his car by a used car dealer.
- On average, Richard’s car travels 30 miles per gallon.

Calculate how much less time Richard took to complete the journey to work on Tuesday than on Monday.
Give your answer in minutes. [6]
Calculate the cost of the fuel he uses to travel to and from work every week. Give your answer correct to the nearest penny.
A talent competition, called WOW FACTOR, has five judges. Each act is given a score out of 10 by each judge. The judges must decide on one act to go through to the next round.

The first three acts were given the following scores by the judges.

<table>
<thead>
<tr>
<th>Judge</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daisy and her dancing pig</td>
<td>6</td>
<td>10</td>
<td>5</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Malcolm the magician</td>
<td>9</td>
<td>10</td>
<td>9</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Wooden clogs</td>
<td>6</td>
<td>8</td>
<td>6</td>
<td>6</td>
<td>7</td>
</tr>
</tbody>
</table>

Calculate the mean, mode and the range of their scores for each act.

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Mode</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Daisy and her dancing pig</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malcolm the magician</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wooden clogs</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Which act do you think the judges should put through to the next round?

Write down one positive comment and one negative comment about the act you have chosen. Your answer must be based on your calculations.

The following week, another three acts performed in front of the same five judges.

Two of the three acts could not be separated.

The ranges of the scores for these two acts were both 5.
The means of the scores for these two acts were both 7.
Even so, the five scores that these two acts received out of 10, from the five judges, were not identical.

Show possible scores that these two acts could have received.

**Space for working**

**Act 1:**

**Act 2:**
Later in the year, three acts reached the final. In the final, the audience was asked to vote.

The 480 audience votes for the three acts, *Dance Crazy*, *Gemma's Gymnasts* and *The Singing Firemen* were cast in the ratio 2 : 3 : 5, respectively.

Calculate how many votes were cast for each act. [3]

Votes for:

*Dance Crazy* .....................  *Gemma's Gymnasts* .....................  *The Singing Firemen* .....................

Use a suitable method to check your answers. [1]
4. Tallulah wishes to join a gym.

The gym offers different types of membership.

<table>
<thead>
<tr>
<th>Membership</th>
<th>Joining Fee</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type A</td>
<td>None</td>
<td>One payment of £195 for the year</td>
</tr>
<tr>
<td>Type B</td>
<td>None</td>
<td>£26.50 per month</td>
</tr>
<tr>
<td>Type C</td>
<td>£35</td>
<td>£15 per month</td>
</tr>
<tr>
<td>Type D</td>
<td>£15</td>
<td>£20 per month for the first 3 months, then £22.50 each month</td>
</tr>
</tbody>
</table>

Compare the cost of the 4 types of membership.

Which type of membership would you advise Tallulah to take?

Give one advantage and one disadvantage of choosing this type of membership. You must show all your working.
5. Sam and Elisia have £200 to spend on buying new kitchen flooring. A sketch of the kitchen plan is shown below. All angles within the diagram are right angles.

They plan to use either tiles or vinyl floor covering for the whole of the kitchen floor.

Each square tile measures 20 cm $\times$ 20 cm.

A box of floor tiles costs £19.50 and is enough to cover 1.2 square metres. Floor tiles are only sold in complete boxes.

The vinyl floor covering is cut to the required length from a roll.

A roll of vinyl floor covering is 4 metres wide and is sold at a price of £66.50 per metre length. It is sold in lengths measured in a whole number of metres only.
Find the difference in cost between using tiles and using the vinyl floor covering for the new flooring. Are Sam and Elisia able to choose either the tiles or the vinyl floor covering for the amount of money they have to spend? Show all your working and give reasons for your answers. [11]

Use a suitable method to check to see if you have calculated the area of the floor of the kitchen correctly. [1]
Once the flooring has been laid, their next job is to design the layout of the kitchen.

Sam and Elisia plan to buy the following items:

A worktop, of width 60 cm, is to go along the whole length of one of the walls which has a window within it.

A sink unit, measuring 1 m by 40 cm, is to be placed at the centre of the worktop, directly in front of a window.

A stand-alone cooker, measuring 60 cm by 60 cm, is to be placed against a wall, and to be at least 1.5 m away from the sink unit and at least 1.5 m away from the fridge-freezer.

A fridge-freezer, measuring 80 cm wide by 60 cm deep, is to be placed along a wall, and to be at least 1.5 m away from the sink unit and at least 1.5 m away from the cooker.

A circular table, with radius 50 cm is to have 30 cm of clear space around all of its edge, to allow room for chairs to be used at the table.

The diagram on the following page is a scale diagram of the kitchen, using a scale of 1 cm = 20 cm.

By drawing an accurate diagram, show how it is possible to fit the items listed above in the kitchen, to satisfy all the given conditions. [7]