Homework 2a

§ 1 Area and Circumference of Circles

1 Calculate (i) the circumference and (ii) the area of the following circles

(a) [Diagram of a circle with a diameter of 6m]

(b) [Diagram of a circle with a radius of 12 cm]

(c) [Diagram of a circle with a radius of 22 mm]

2 A circular cake stand has a diameter of 30 cm. Calculate the area of the stand.

3 Calculate the perimeter the shape below.

Homework 2b

§ 2 Algebra and Common Factors

1 Simplify:

(a) \(4x + 6y - 7x + 10y\)  
(b) \(5a + 4c - 14a\)  
(c) \(2x - 5y + 3y\)

2 Evaluate each of the following expressions when \(a = 2\), \(b = -4\) and \(c = -3\).

(a) \(6a + 2b\)  
(b) \(a^2 + ac\)  
(c) \(abc\)  
(d) \(ac + ac\)

3 Expand the following:

(a) \(3(x - 1)\)  
(b) \(2(a - 6)\)  
(c) \(5(2x - 1)\)  
(d) \(8(3p - 4)\)

4 Expand the following:

(a) \(3(x - 1) + 3x\)  
(b) \(2(a + 3) - 9\)  
(c) \(4(x - 5) - 6x\)

5 Factorise:

(a) \(3x - 15\)  
(b) \(5y + 35\)  
(c) \(8a + 48\)  
(d) \(18 + 6t\)
Homework 2c

§ 3 Mixed

1. Solve each of the following equations.

   (a) \( 3x + 8 = 2 \)  \hspace{1cm} (b) \( 2t + 3 = -7 \)  \hspace{1cm} (c) \( 4m + 1 = -3 \)
   \( (d) \) \( 4y - 7 = -3 \)  \hspace{1cm} (e) \( 6a - 1 = -13 \)  \hspace{1cm} (f) \( 7d - 2 = -2 \)
   \( (g) \) \( 5y = 3y - 16 \)  \hspace{1cm} (h) \( 3a = 20 - 2a \)  \hspace{1cm} (i) \( 7d = -2d - 18 \)
   \( (j) \) \( 7h + 4 = 4h - 5 \)  \hspace{1cm} (k) \( 12p - 6 = 8p - 2 \)  \hspace{1cm} (l) \( 8x + 5 = 14 - x \)
   \( (m) \) \( 2p + 3 = p - 4 \)  \hspace{1cm} (n) \( 7h - 6 = 2h - 21 \)  \hspace{1cm} (o) \( 5x + 9 = 8x + 33 \)
   \( (p) \) \( 4y - 7 = 8y - 23 \)  \hspace{1cm} (q) \( 7k + 2 = 4k - 25 \)  \hspace{1cm} (r) \( 16a - 4 = 6a - 34 \)

2. In a restaurant, tables and chairs are set out as shown below.

   ![Diagram of tables]

   Complete this table.

<table>
<thead>
<tr>
<th>Number of tables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>13</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of chairs</td>
<td>4</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. Renvi is tiling her bathroom floor. She needs 15 boxes of tiles. The price of one box is £23.
   The tile shop has a special offer of “buy one box get one box half price”.
   Renvi makes use of the special offer.
   How much does Renvi pay for 15 boxes of tiles?

4. Calculate:

   a) 20% of £30  \hspace{1cm} b) 50% of 11 kg
   c) 15% of 200  \hspace{1cm} d) 22% of £4