# Trinomials

Year Ten Advanced Homework Sheet # 2, Term 3

Name: ____________________________  Due Date: ____________________________

### Factorise the following trinomials

<table>
<thead>
<tr>
<th>Number</th>
<th>Trinomial</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$x^2 + 3x + 2$</td>
<td>$= (x + 1)(x + 2)$</td>
</tr>
<tr>
<td>2</td>
<td>$b^2 + 7b + 6$</td>
<td>$= (b + 1)(b + 6)$</td>
</tr>
<tr>
<td>3</td>
<td>$m^2 + 9m + 20$</td>
<td>$= (m + 4)(m + 5)$</td>
</tr>
<tr>
<td>4</td>
<td>$t^2 + 10t + 25$</td>
<td>$= (t + 5)^2$</td>
</tr>
<tr>
<td>5</td>
<td>$b^2 + 12b + 36$</td>
<td>$= (b + 6)^2$</td>
</tr>
<tr>
<td>6</td>
<td>$c^2 - 12c + 36$</td>
<td>$= (c - 6)^2$</td>
</tr>
<tr>
<td>7</td>
<td>$d^2 - 7d + 12$</td>
<td>$= (d - 3)(d - 4)$</td>
</tr>
<tr>
<td>8</td>
<td>$p^2 - 9p + 20$</td>
<td>$= (p - 4)(p - 5)$</td>
</tr>
<tr>
<td>9</td>
<td>$a^2 + 4a - 12$</td>
<td>$= (a + 6)(a - 2)$</td>
</tr>
<tr>
<td>10</td>
<td>$t^2 + 7t - 30$</td>
<td>$= (t + 10)(t - 3)$</td>
</tr>
<tr>
<td>11</td>
<td>$s^2 + s - 30$</td>
<td>$= (s + 6)(s - 5)$</td>
</tr>
<tr>
<td>12</td>
<td>$b^2 + 2b - 8$</td>
<td>$= (b + 4)(b - 2)$</td>
</tr>
<tr>
<td>13</td>
<td>$y^2 - 7y - 30$</td>
<td>$= (y - 10)(y + 3)$</td>
</tr>
<tr>
<td>14</td>
<td>$p^2 - 26p - 56$</td>
<td>$= (p - 14)(p + 4)$</td>
</tr>
<tr>
<td>15</td>
<td>$m^2 - 14m + 49$</td>
<td>$= (m - 7)^2$</td>
</tr>
</tbody>
</table>

### Factorise by DOPS or common factor

<table>
<thead>
<tr>
<th>Number</th>
<th>Trinomial</th>
<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>$a^2 + 8x$</td>
<td>$= a^2 + 2ax + 4x = (a + 2x)^2$</td>
</tr>
<tr>
<td>3</td>
<td>$b + 10xy + 15x^3$</td>
<td>$= b + 3(2xy + 5x^2)$</td>
</tr>
<tr>
<td>4</td>
<td>$c^2 - 9$</td>
<td>$= c^2 - 3^2 = (c - 3)(c + 3)$</td>
</tr>
<tr>
<td>5</td>
<td>$d^2 - 2$</td>
<td>$= d^2 - 1^2 = (d - 1)(d + 1)$</td>
</tr>
<tr>
<td>6</td>
<td>$e^2 - 49$</td>
<td>$= e^2 - 7^2 = (e - 7)(e + 7)$</td>
</tr>
<tr>
<td>7</td>
<td>$f + 20$</td>
<td>$= f + 45(0.44)$</td>
</tr>
<tr>
<td>8</td>
<td>$g + (x + 5)^2 - (x - 4)^2$</td>
<td>$= (x + 5 + x - 4)(x + 5 - x + 4)$</td>
</tr>
</tbody>
</table>

### Factorise by grouping

<table>
<thead>
<tr>
<th>Number</th>
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<th>Solution</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>$ab - ac + bd - cd$</td>
<td>$= (a - c)(b - d)$</td>
</tr>
<tr>
<td>4</td>
<td>$3x + ax - 3y - ay$</td>
<td>$= 3(x + a) - y(a + 3)$</td>
</tr>
<tr>
<td>5</td>
<td>$4ac + 4ad - 6bc - 6bd$</td>
<td>$= 4a(c + d) - 6b(c + d)$</td>
</tr>
<tr>
<td>6</td>
<td>$-4ps + 2pr + 6qs - 3qr$</td>
<td>$= -4p(s - 2r) + 6q(s - r)$</td>
</tr>
</tbody>
</table>