### Table 9.1 CDMA Example

(a) User’s codes

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>–1</th>
<th>–1</th>
<th>1</th>
<th>–1</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>User A</td>
<td>1</td>
<td>–1</td>
<td>–1</td>
<td>1</td>
<td>–1</td>
<td>1</td>
</tr>
<tr>
<td>User B</td>
<td>1</td>
<td>1</td>
<td>–1</td>
<td>–1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>User C</td>
<td>1</td>
<td>1</td>
<td>–1</td>
<td>1</td>
<td>1</td>
<td>–1</td>
</tr>
</tbody>
</table>

(b) Transmission from A

- **Transmit (data bit = 1)**
  - Receiver codeword
    | 1 | –1 | –1 | 1 | –1 | 1 |
  - **Multiplication**
    | 1 | 1 | 1 | 1 | 1 | 1 | = 6

- **Transmit (data bit = 0)**
  - Receiver codeword
    | –1 | 1 | 1 | –1 | 1 | –1 |
  - **Multiplication**
    | –1 | –1 | –1 | –1 | –1 | –1 | = –6

(c) Transmission from B, receiver attempts to recover A’s transmission

- **Transmit (data bit = 1)**
  - Receiver codeword
    | 1 | 1 | –1 | –1 | 1 | 1 |
  - **Multiplication**
    | 1 | –1 | –1 | 1 | –1 | 1 | = 0

(d) Transmission from C, receiver attempts to recover B’s transmission

- **Transmit (data bit = 1)**
  - Receiver codeword
    | 1 | 1 | –1 | 1 | 1 | –1 |
  - **Multiplication**
    | 1 | 1 | 1 | –1 | 1 | –1 | = 2

(e) Transmission from B and C, receiver attempts to recover B’s transmission

- **B (data bit = 1)**
  - Receiver codeword
    | 1 | 1 | –1 | –1 | 1 | 1 |
  - **Combined signal**
    | 1 | 1 | –1 | 1 | 1 | –1 |
  - **Multiplication**
    | 2 | 2 | –2 | 0 | 2 | 0 | = 8

- **C (data bit = 1)**
  - Receiver codeword
    | 1 | 1 | –1 | –1 | 1 | 1 |
  - **Combined signal**
    | 2 | 2 | –2 | 0 | 2 | 0 |
  - **Multiplication**
    | 2 | 2 | 2 | 0 | 2 | 0 | = 8