Problem #1. The Menominee verb forms have the following structure:

<table>
<thead>
<tr>
<th>ne- I</th>
<th>ke- we1+2</th>
<th>__ he</th>
</tr>
</thead>
<tbody>
<tr>
<td>kaw</td>
<td>down</td>
<td>-ähpe laughing</td>
</tr>
<tr>
<td>ket</td>
<td>out</td>
<td>-anæhkæ digging</td>
</tr>
<tr>
<td>kēsk</td>
<td>through</td>
<td>-eqta __</td>
</tr>
<tr>
<td>pahk</td>
<td>off</td>
<td>-ohnæ walking</td>
</tr>
<tr>
<td>pāhk</td>
<td>open</td>
<td>-m I</td>
</tr>
<tr>
<td>pit</td>
<td>hither</td>
<td>-q we1+2</td>
</tr>
<tr>
<td>taw</td>
<td>pierce</td>
<td>-w he</td>
</tr>
<tr>
<td>wack</td>
<td>around</td>
<td>-ah by tool</td>
</tr>
<tr>
<td>wæp</td>
<td>begin</td>
<td>-an I</td>
</tr>
</tbody>
</table>

- Intransitive verb:
  - -ahpe laughing
  - -anæhkæ digging
  - -eqta __
  - -ohnæ walking

- Transitive verb:
  - -ah by tool
  - -aht by mouth
  - -en by hand
  - -es cutting

If both first vowels in the word are short, the second becomes long (e > ãë).

(a) • kekēskahæq: we1+2 chop it through, break it through by tool
    • nepåhkenan:
      - I open, uncover it by hand (\(\sqrt{påh}k\)),
      - I break it off, tear it off by hand (\(\sqrt{påh}k\))
    • wæpåhpew: he begins laughing

(b) • I begin to eat it: newæpahtan
    • we1+2 lay it flat by hand: kekâwenæq
    • he digs a hole: tawâñæhkæw
    • he walks out: ketólnæw

Problem #2.

(a) bøga [bø:va]  (b) In the first syllable a [əa], á [əa], e [æ], eï [æi], ey [æi], i [i:], o [ɔ:], oy [ɔi], ò [ɔu], u [u:], ū [u:], ø [ø:].
    knødær [kənɔ:ə]  Between vowels \(\partial = g\). The first applicable rule is applied:
    kvøða [kvø:ə]
    løgur [lɔ:rʊɾ]
    plága [plə:va]
    skædi [skədɪ]
    toygur [tɔjʊɾ]
    trúgi [tɾuʊwi]

1. \(\partial / g [w] | [u(ɔ)] \_\);
2. \(\partial / g [i] | [i(ɔ)] \_ or \_ [i(ɔ)];
3. \(\partial / g [v] | \_ [u(ɔ)];
4. \(\partial / g [v] \) in a noun, [∅] in a verb.
Problem #3. Rules:

1. Adjectives follow their nouns.

2. A noun (or the adjective if there is one) gets the marker -é, unless it is inalienably possessed (body part, kinship term); in the latter case it is preceded by the possessor.

3. Alienable possession is expressed by á between the possessor and the possessed.

4. In compound nouns the last syllable has low tone (“/”).

(a) müsúé á gbömúé: the woman’s fish
léñ kúndúé á nyímié: the short child’s snake
gbömúé-lándé kúndúé: the short boat

(b) kändé-lándé lóbé: the small airplane

(c) the eagle’s snake: kóáñjáé á nyímié
the small child’s eye: léñ lóbé já
the tall man’s sister: kái jáñjé lóbé-müsú
the small baby-snake: nyímií-léñ lóbé

Problem #4. In compound nouns the left-hand part modifies the right-hand one. A noun gets the ending -tl/li unless it has one of the suffixes -capil (dimin.), -huah ‘one who has ...’, -tlah/lah ‘place of many . . .’, or -tzintli ‘revered . . .’ (-li and -lah after l, otherwise -tl and -tlah).

(a) a-cal-huah: canoe owner (a-cal-li canoe, “water house”)
a-chil-li: water pepper
a-tl: water
cal-lah: village
cal-huah: master of house
chil-a-tl: chili water
chil-li: chili
col-li: grandfather/ancestor
col-tzintli: revered grandfather/ancestor
cone-huah: mother, “one who has child(ren)”
cone-huah-capil: mom(my)
cone-tl: child
oquich-cone-tl: boy, male child
oquich-huah: wife, “one who has a husband”
oquich-totol-tzintli: revered turkey-cock
te-huah: possessor of stones
te-tlah: stony ground
totol-te-tl: turkey egg

(b) house: calli: stone: tétl: possessed of water: ahuah
revered man/husband: oquichtzintli

(c) cacahua-tl: cocoa
cacahua-a-tl: cocoa drink

cacahua-te-tl: cocoa bean
cacahua-huah: possessor of cocoa
Problem #5. The patterns of bars of unit width •• (at both ends) and ◦◦◦◦ (in the middle) frame two blocks of six digits. Each digit is shown as four bars of widths 1–4, with a total width of 7. There are three codes for each digit, one of which (R) is used on the right and two (A and B) on the left.

<table>
<thead>
<tr>
<th></th>
<th>A: ••••</th>
<th>B: ••••</th>
<th>R: ••••</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>——</td>
<td>3211</td>
<td>3211</td>
</tr>
<tr>
<td>1</td>
<td>?</td>
<td>2221</td>
<td>2221</td>
</tr>
<tr>
<td>2</td>
<td>AABBAB</td>
<td>2122</td>
<td>2122</td>
</tr>
<tr>
<td>3</td>
<td>AABBBA</td>
<td>1411</td>
<td>1411</td>
</tr>
<tr>
<td>4</td>
<td>ABAABB</td>
<td>1132</td>
<td>1132</td>
</tr>
<tr>
<td>5</td>
<td>ABBAAB</td>
<td>1231</td>
<td>1231</td>
</tr>
<tr>
<td>6</td>
<td>ABBBBA</td>
<td>1114</td>
<td>1114</td>
</tr>
<tr>
<td>7</td>
<td>ABABAB</td>
<td>1312</td>
<td>1312</td>
</tr>
<tr>
<td>8</td>
<td>ABABBA</td>
<td>1213</td>
<td>1213</td>
</tr>
<tr>
<td>9</td>
<td>ABBABA</td>
<td>3112</td>
<td>3112</td>
</tr>
<tr>
<td>X</td>
<td>AAABB</td>
<td>——</td>
<td>——</td>
</tr>
</tbody>
</table>

The pattern of As and Bs on the left gives the sub-code. Each pattern starts with A (this indicates that the barcode is the right way up, otherwise it would start with B, the mirror image of R) and contains exactly three As. The problem features all possible patterns except AABBAB (subcode 1).

Only barcodes for meat, cheese, etc., which have random weights have the price included as part of the barcode (for the rest, the price is looked up from the store’s computer system). These are produced in-store (subcode 2) and so do not have a standard layout, but in the two that are given in the problem the last four digits before the checksum are the price (pork steak: 0416 → 4 euros and 16 cents).

(a)  1. (E);
2. G, checksum = 2;
3. C;
4. D;
5. A, Germany;
6. I;
7. H, cost = 4 euros and 74 cents;
8. B, full code = 7-317442-030049;
9. F.

(b) ![Barcode Image]

(c) This barcode is upside down (it starts with a B, not with an A), so it must be turned over and written backwards.

Norway = 70, full code = 7-022070-000035.