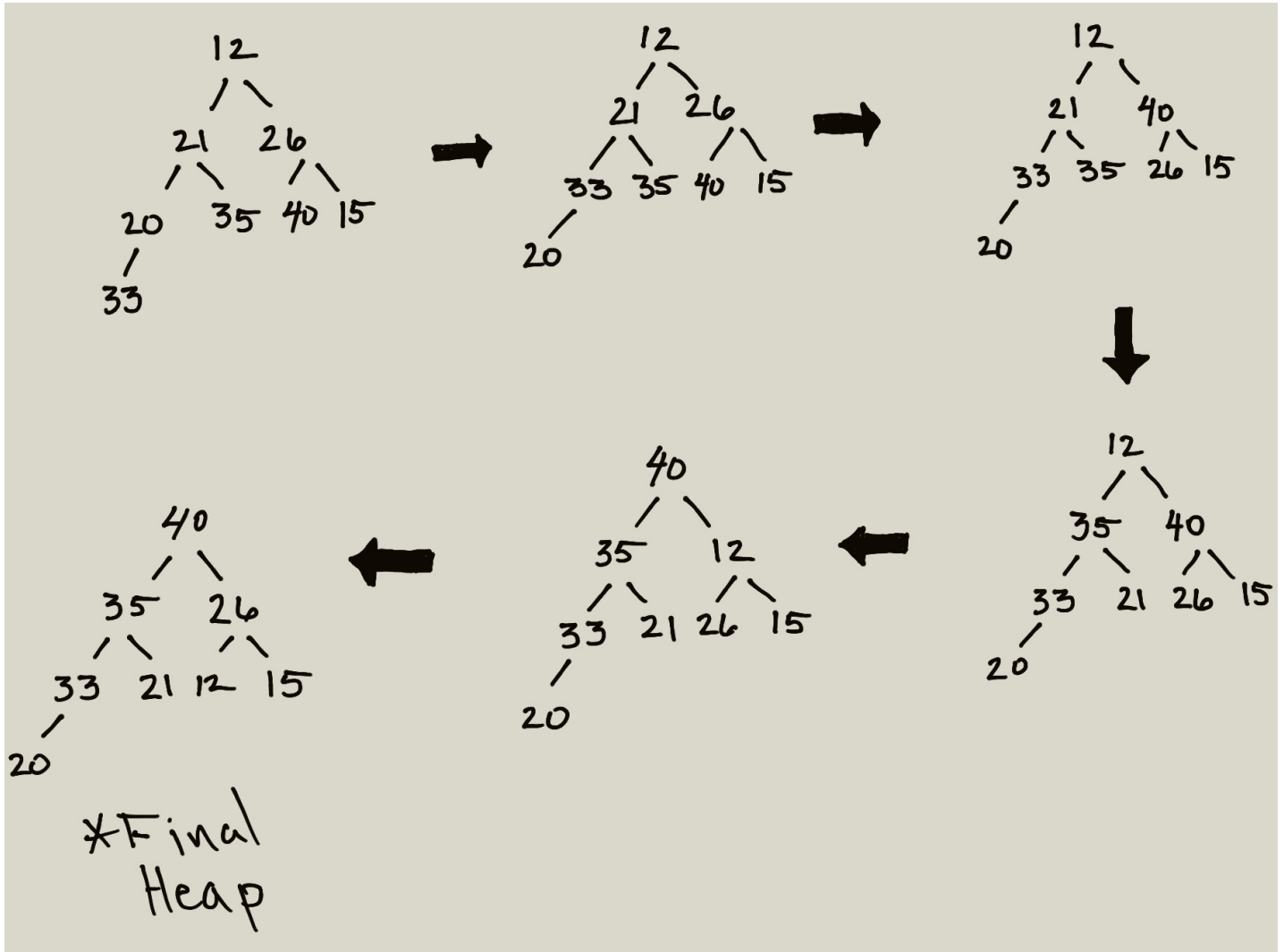Problem 1 #1:

*Final Heap

Problem 1 #2:

$$\{40, 35, 26, 33, 21, 12, 15, 20\}$$

1.   40, 35, 26, 33, 21, 12, 15, 20

   20, 35, 26, 33, 21, 12, 15, 40   *

2.   35, 33, 26, 20, 21, 12, 15, 40

   15, 33, 26, 20, 21, 12, 35, 40 *

3.   33, 21, 26, 20, 15, 12, 35, 40

   12, 21, 26, 20, 15, 33, 35, 40 *

4.   26, 21, 12, 20, 15, 33, 35, 40

   15, 21, 12, 20, 26, 33, 35, 40 *

5.   21, 20, 15, 12, 26, 33, 35, 40

   12, 20, 15, 21, 26, 33, 35, 40 *

6.   20, 15, 12, 21, 26, 33, 35, 40

   12, 15, 20, 21, 26, 33, 35, 40   *

7. {12, 15, 20, 21, 26, 33, 35, 40}

Problem 2 #1:

* `go` causes

overflow

0. if
1. to
2. my
3. the
4. an
5. by
6. do
7. we

Problem 2 #2:

* 'we' causes
  overflow

0.
1. by
2. my
3. the
4. do
5.
6. an
7.

Problem 2 #3:

* `we` causes
  overflow

0.
1.
2. my
3. the
4. do
5. an
6. by
7.

Problem 3 #1:

a:

1 = 2   h = 5

2 = 0   p = -15

3 = 2

4 = 1

5 = 1

6 = 3

7 = 1

8 = 3

` ' = 2

b:

1 = 2   h = 14

2 = 0   p = -14

3 = 2

4 = 1

5 = 2

6 = 3

7 = 1

8 = 2

` ' = 1

d:

1 = 2   h = 13

2 = 0   p = -13

3 = 1

4 = 1

5 = 2

6 = 3

7 = 1

8 = 3

` ' = 0

h:

1 = 2   h = 15

2 = 0   p = -15

3 = 1

4 = 1

5 = 2

6 = 3

7 = 2

8 = 3

` ' = 1

Problem 3 #2:

a:

1 = 2
2 = 0
3 = 2
4 = 1
5 = 1
6 = 3
7 = 1
8 = 3
`` = 2

h = 15

$p = -(15 + 0)$

$= -15$

b:

1 = 2
2 = 0
3 = 2
4 = 1
5 = 2
6 = 3
7 = 1
8 = 2
`` = 1

h = 14

$p = -(14 + 1)$

$= -15$

d:

1 = 2
2 = 0
3 = 1
4 = 1
5 = 2
6 = 3
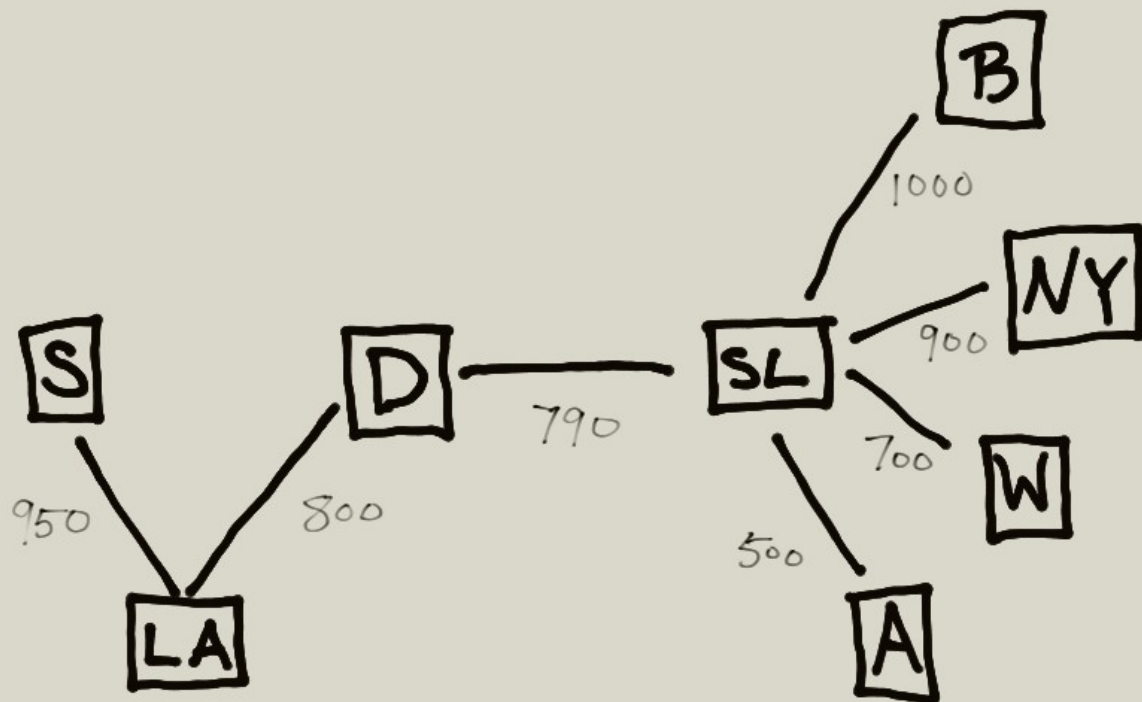7 = 1
8 = 3
`` = 0

h = 13

$p = -(13 + 2)$

$= -15$

h:

1 = 2
2 = 0
3 = 1
4 = 1
5 = 2
6 = 3
7 = 2
8 = 3
`` = 1

h = 15

$p = -(15 + 3)$

$= -18$

Problem 7 #1:

$(LA, D) \rightarrow 800$

$(LA, S) \rightarrow 950$

$(LA, SL) \rightarrow 1590$

$(LA, A) \rightarrow 2090$

$(LA, W) \rightarrow 2290$

$(LA, NY) \rightarrow 2490$

$(LA, B) \rightarrow 2590$

Problem 9 # 1: