NCC 2015
Part B

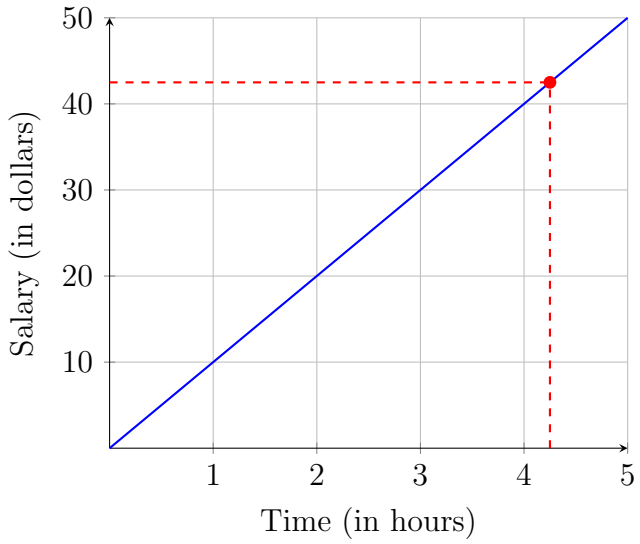
1. 40 nickels and 15 quarters make $40 \times 5 + 15 \times 25 = 200 + 375 = \boxed{575}$ cents.

2. The final mass of the container is $1\text{kg} + 800\text{g} - 100\text{g} = \boxed{1700\text{ g}}$. (Remember that $1\text{kg} = 1000\text{g}$)

3. To get to the 6^{th} floor from the 1^{st} floor, Susan needs to go up 5 floors. Since she takes 15 seconds to go up one floor, this takes $5 \times 15 = \boxed{75}$ seconds.

4. From the graph, we see that Alice earns \$10 per hour she works.

   Since 4 hours and 15 minutes is the same as 4.25 hours, during this time she earns $4.25 \times \$10 = \boxed{\$42.50}$.



5. The trick is to realize that in one day-night cycle, the snail climbs a total of 4 meters, *except* on the day the snail reaches the top. In the first 14 days, the snail climbs $4 \times 14 = 56$ meters. On the 15^{th} day, the snail climbs 7 meters to the top of the wall (and doesn't fall down). Thus the answer is $\boxed{\text{January } 15^{\text{th}}}$.

6. Determine the missing number in the pattern below:

   $$1, 3, 7, 15, 31, ?, 127$$

   Every number in the list is obtained by doubling the previous number, then adding 1. For example, $3 = 2 \times 1 = 1$, and $31 = 2 \times 15 + 1$. The missing number is then $2 \times 31 + 1 = \boxed{63}$.

7. In total, Alice and Bob have 30 grandchildren. Since Jane has 4 siblings, she has $30 - 5 = \boxed{25}$ first cousins.

8. We are trying to find x:

		4	
1		y	2
	2	x	

Consider the square marked y. y can't be 1, 2, or 4 (since y has 1, 2 in its row and 4 in its column), so y must be 3:

		4	
1		3	2
	2	x	

Now, we see that x can't be 2, 3, or 4, so x must be $\boxed{1}$.