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Homework 1

Part 1:

a. The output for line A is as follows: “A: Value = 140”
The output for line B is as follows: “B: Value = 100”

b. This result does not contradict the copy-on-write concept. Both the child and the parent share the same version of “value”, however once the first modification to “value” is made the child then uses a copy of the original. This is apparent in the outputs having a difference of 40 instead of 20.

c. The initial if block of code is just to check that the fork() was successful. The else if section of code will be run by the parent and the else section of code will be run by the child.

Part 2:

a. Value of pid at line A is 1115
Value of pid at line B is 1114
Value of pid at line C is 0
Value of pid at line D is 1115
The printing order will be C, D, A, then B

b. The child cannot become a child or an orphan in its lifetime. This is because of the wait() used by the parent. A zombie is created when the child is terminated but the parent is not waiting; in our case, the parent is waiting. An orphan is created when the parent terminates before the child; in our case, the parent cannot finish until the child does because of the wait().