

Quiz 2 (Sep 18, 2025)

Name:

ANSWERS

NetID (e.g., ap191):

Please write your answers clearly and keep them brief.

Problem	Score
Question 1	/ 10
Total	/ 10



1. For each program below, write down what is printed when the program is executed. You can assume calls that none of the calls return errors, e.g., you need not worry about `fork` returning a negative number. [5 × 2 = 5 points.]

```
1
2 #include <stdio.h>
3 #include <unistd.h>
4
5 void update_x(void* x) {
6     int *xi = (int*)x;
7     xi += 42;
8 }
9
10 int main(int argc, char* argv[]) {
11     int x = 0;
12     if (fork() == 0) {
13         update_x((void*)&x);
14     } else {
15         wait(0);
16         printf("x = %d\n", x)
17     }
18 }
```

`x = 0`

The parent and child process are isolated from each other: changes in the child process are not visible to the parent.

```
1
2 #include <stdio.h>
3 #include <thread.h>
4
5 void update_x(void* x) {
6     int *xi = (int*)x;
7     xi += 42;
8     thread_exit();
9 }
10
11 int main(int argc, char* argv[]) {
12     int x = 0;
13     tid_t t0 = thread_create(update_x, (void*)&x);
14     thread_join(t0);
15     printf("x = %d\n", x)
16 }
```

`x = 42`

Threads within a process are not isolated, and changes made by one thread are visible to another.

