

Before the first `fseek()` statement, since `rewind()` was called, the position should be 0.

After the first `fseek()` statement, the position of the file marker would be at index 7, then `fread()` would read the 8<sup>th</sup> integer, then `ftell()` would give us  $8 * \text{sizeof}(\text{int})$  bytes from the start

The second `fseek()` moves back 2 integers, so `ftell()` before `fread()` would give us  $6 * \text{sizeof}(\text{int})$  bytes from the start. Then after `fread()`, `ftell()` would show  $7 * \text{sizeof}(\text{int})$  bytes from the start.

The third moves the file pointer one integer forwards, so `ftell()` would show  $8 * \text{sizeof}(\text{int})$  bytes from the start before the `fread()`. Then after `fread()`, `ftell()` would show  $9 * \text{sizeof}(\text{int})$  bytes from the start.

The fourth `fseek()` moves the file pointer directly to the 4<sup>th</sup> integer. `ftell()` would show  $3 * \text{sizeof}(\text{int})$  bytes from the start before `fread()`. Then after `fread()`, `ftell()` would show  $4 * \text{sizeof}(\text{int})$  bytes from the start.

Then the last `fseek()` moves the file pointer 5 integers forwards, so `ftell()` before `fread()` would show  $9 * \text{sizeof}(\text{int})$  bytes from the start. Then after `fread()`, `ftell()` would show  $10 * \text{sizeof}(\text{int})$  bytes from the start.

Code and output on next page:

Code:

```
// Seek to the 8th integer (index 7, since we start counting from 0)
fseek(fd, sizeof(int) * 7, SEEK_SET);
printf("\nCurrent position: %ld\n", ftell(fd));
fread(&data, sizeof(int), 1, fd);
printf("Value read: %d\n", data);
printf("New position: %ld\n", ftell(fd));

// Move back 2 integers from the current position
fseek(fd, (-2) * sizeof(int), SEEK_CUR);
printf("\nCurrent position: %ld\n", ftell(fd));
fread(&data, sizeof(int), 1, fd);
printf("Value read: %d\n", data);
printf("New position: %ld\n", ftell(fd));

// Move forward 1 integer from the current position
fseek(fd, sizeof(int), SEEK_CUR);
printf("\nCurrent position: %ld\n", ftell(fd));
fread(&data, sizeof(int), 1, fd);
printf("Value read: %d\n", data);
printf("New position: %ld\n", ftell(fd));

// Move to the 4th integer from the beginning
fseek(fd, sizeof(int) * 3, SEEK_SET);
printf("\nCurrent position: %ld\n", ftell(fd));
fread(&data, sizeof(int), 1, fd);
printf("Value read: %d\n", data);
printf("New position: %ld\n", ftell(fd));

// Move forward 5 integers from the current position
fseek(fd, sizeof(int) * 5, SEEK_CUR);
printf("\nCurrent position: %ld\n", ftell(fd));
fread(&data, sizeof(int), 1, fd);
printf("Value read: %d\n", data);
printf("New position: %ld\n", ftell(fd));
```

Output:

```
student @ COMP2401 : 20:12:37
~/Desktop/Assignments/A5/output # ./"a5temp"
File values:
5, 8, 12, 24, 41, 56, 77, 78, 80, 91, 93, 128,

Current position: 28
Value read: 78
New position: 32

Current position: 24
Value read: 77
New position: 28

Current position: 32
Value read: 80
New position: 36

Current position: 12
Value read: 24
New position: 16

Current position: 36
Value read: 91
New position: 40
```

