**WORKSHEET 7.1 – Answer Sheet**

**Recursion Review**

For each solution, each method call is shown in Column 1. The state of suspension is shown in Column 2. Column 3 reads from bottom to top as the values are popped off the stack and plugged in.

1. The final answer is 40

|  |  |  |
| --- | --- | --- |
| identity(num) | Suspended actions | Popping back up the stack |
|  |  |  |
| identity (10) | 10 + identity(8) | 40 |
| identity (8) | 8 + identity(6) | 30 |
| identity (6) | 6 + identity(4) | 22 |
| identity (4) | 4 + identity(2) | 16 |
| identity (2) | 2 + identity(0) | 12 |
| identity (0) | 10 |  |

2. The final answer is 79

|  |  |  |
| --- | --- | --- |
| negative(num) | Suspended actions | Popping back up the stack |
|  |  |  |
| negative(-3) | negative(-3 + 4) + 2\*(-3) | 79 |
| negative(1) | negative(1 + 4) + 2\*(1) | 85 |
| negative(5) | negative(5 + 4) + 2\*(5) | 83 |
| negative(9) | negative(9 + 4) + 2\*(9) | 73 |
| negative(13) | negative(13 + 4) + 2\*(13) | 55 |
| negative(17) | negative(17+ 4) + 2\*(17) | 29 |
| negative(21) | -5 |  |

3. The final answer is 32768

|  |  |  |
| --- | --- | --- |
| product(num) | Suspended actions | Popping back up the stack |
|  |  |  |
| product(1) | 1 \* product(-2 \* 1) | 32768 |
| product(-2) | -2 \* product(-2 \* -2) | 32768 |
| product(4) | 4 \* product(-2 \* 4) | -16384 |
| product(-8) | -8 \* product(-2 \* -8) | -4096 |
| product(16) | 16 \* product(-2 \* 16) | 512 |
| product(-32) | -32\* product(-2 \* -32) | 32 |
| product(64) | -1 |  |