Recursion Answers

1. The final answer is 243

|  |  |  |
| --- | --- | --- |
| mist(n) | Suspended actions | Popping back up the stack |
|  |  |  |
| mist (5) | 3 \* mist(4) | 243 |
| mist (4) | 3 \* mist(3) | 81 |
| mist (3) | 3 \* mist(2) | 27 |
| mist (2) | 3 \* mist(1) | 9 |
| mist (1) | 3 |  |

1. The final answer is 0 9

|  |  |  |
| --- | --- | --- |
| misty(n) | Suspended actions | Popping back up the stack |
|  |  |  |
| misty(38) | misty(2)  System.out.print(n/4 + “ “); | 9 |
| misty(2) | System.out.print(n/4 + “ “); | 0 |

1. The final answer is 106

|  |  |  |
| --- | --- | --- |
| mistier(n) | Suspended actions | Popping back up the stack |
|  |  |  |
| mistier(3) | 4 \* mistier(2) + 2 | 106 |
| mistier(2) | 4 \* mistier(1) + 2 | 26 |
| mistier(1) | 4 \* mistier(0) + 2 | 6 |
| mistier(0) | 1 |  |

1. The final answer is 96

|  |  |  |
| --- | --- | --- |
| mistiest(n) | Suspended actions | Popping back up the stack |
|  |  |  |
| mistiest(2) | 2 \* mistiest(3) | 96 |
| mistiest(3) | 2\* mistiest(4) | 48 |
| mistiest(4) | 2\* mistiest(5) | 24 |
| mistiest(5) | 2\* mistiest(6) | 12 |
| mistiest(6) | 6 |  |

1. The final answer is 15

|  |  |  |
| --- | --- | --- |
| whoKnows(n) | Suspended actions | Popping back up the stack |
|  |  |  |
| whoKnows (5) | 5 + whoKnows (4) | 15 |
| whoKnows (4) | 4 + whoKnows (3) | 10 |
| whoKnows (3) | 3 + whoKnows (2) | 6 |
| whoKnows (2) | 2 + whoKnows (1) | 3 |
| whoKnows (1) | 1 |  |

1. The final answer is 2

|  |  |  |
| --- | --- | --- |
| weird(p,q) | Suspended actions | Popping back up the stack |
|  |  |  |
| weird (2,2) | weird (1,weird(2,1)) | 2 |
| weird (2,1) | weird (1,weird(1,0)) | 2 |
| weird (1,0) | 2 |  |
| weird (1,2)[[1]](#footnote-1)1 | 2 |  |
| weird (1,2)[[2]](#footnote-2)2 | 2 |  |

1. The final answer is 4

|  |  |  |
| --- | --- | --- |
| weirder(r,s) | Suspended actions | Popping back up the stack |
|  |  |  |
| weirder (3,2) | weirder (2,2) + weirder (2,1) | 4 |
| weirder(2,2) | 1 |  |
| weirder (2,1) | weirder (1,1) + weirder (1,0) | 3 |
| weirder (1,1) | 1 |  |
| weirder (1,0) | weirder (0,0) + weirder (0,1) | 2 |
| weirder (0,0) | 1 |  |
| weirder (0,1) | 1 |  |

1. The final answer is 1

|  |  |  |
| --- | --- | --- |
| weirdest(n) | Suspended actions | Popping back up the stack |
|  |  |  |
| weirdest (40) | weirdest (20) |  |
| weirdest(20) | weirdest (20) |  |
| weirdest (10) | weirdest (5) |  |
| weirdest (5) | weirdest (2) |  |
| weirdest (2) | weirdest (1) |  |
| weirdest (1) | 1 |  |

1. The final answer is 1 2 5 10 20 40

|  |  |  |
| --- | --- | --- |
| weirdo(x) | Suspended actions | Popping back up the stack |
|  |  |  |
| weirdest (40) | weirdest (20) | 40 |
| weirdest(20) | weirdest (20) | 20 |
| weirdest (10) | weirdest (5) | 10 |
| weirdest (5) | weirdest (2) | 5 |
| weirdest (2) | weirdest (1) | 2 |
| weirdest (1) | 1 |  |

1. The final answer is 40 20 10 5 2 1

|  |  |  |
| --- | --- | --- |
| weirdo(x) | Suspended actions | Popping back up the stack |
|  |  |  |
| weirdest (40) | 40  weirdest (20) | 40 |
| weirdest(20) | 20  weirdest (20) |  |
| weirdest (10) | 10  weirdest (5) |  |
| weirdest (5) | 5  weirdest (2) |  |
| weirdest (2) | 2  weirdest (1) |  |
| weirdest (1) | 1 |  |

1. 1 This comes from plugging the returned value of weird(1,0), 2, into weird(1,weird(1,0)). [↑](#footnote-ref-1)
2. 2 This comes from plugging the returned value of weird(2,1), 2, into weird(1,weird(2,1)) [↑](#footnote-ref-2)