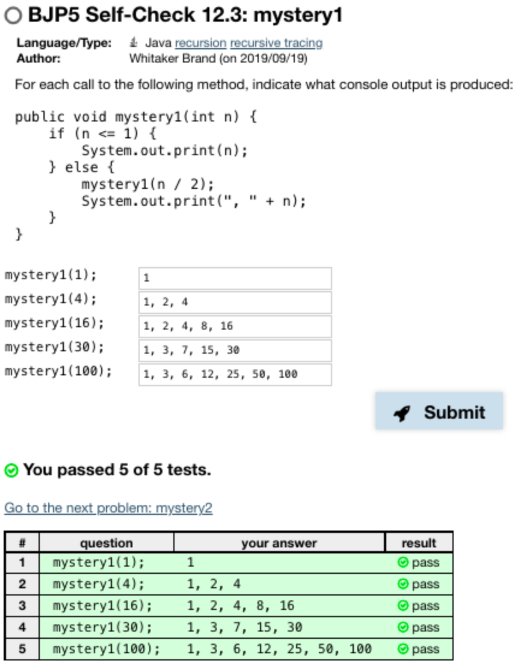


○ BJP5 Self-Check 12.3: mystery1

Language/Type: Java recursion recursive tracing
Author: Whitaker Brand (on 2019/09/19)

For each call to the following method, indicate what console output is produced:

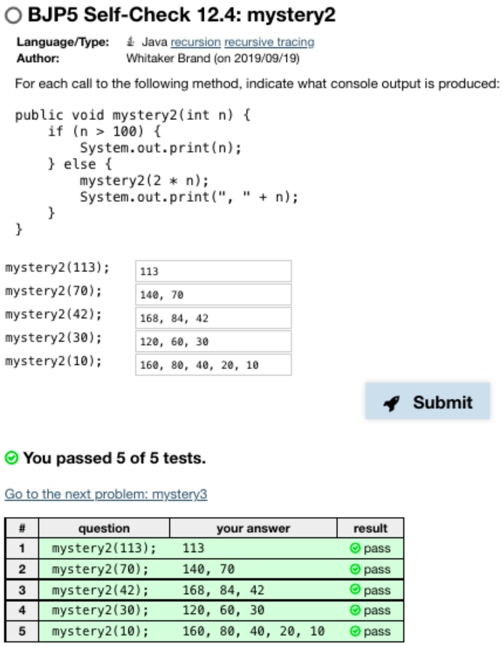
```
public void mystery1(int n) {
    if (n <= 1) {
        System.out.print(n);
    } else {
        mystery1(n / 2);
        System.out.print(", " + n);
    }
}
```

mystery1(1); 1
mystery1(4); 1, 2, 4
mystery1(16); 1, 2, 4, 8, 16
mystery1(30); 1, 3, 7, 15, 30
mystery1(100); 1, 3, 6, 12, 25, 50, 100

✓ **You passed 5 of 5 tests.**

Go to the next problem: mystery2

#	question	your answer	result
1	mystery1(1);	1	✓ pass
2	mystery1(4);	1, 2, 4	✓ pass
3	mystery1(16);	1, 2, 4, 8, 16	✓ pass
4	mystery1(30);	1, 3, 7, 15, 30	✓ pass
5	mystery1(100);	1, 3, 6, 12, 25, 50, 100	✓ pass



○ BJP5 Self-Check 12.4: mystery2

Language/Type: Java recursion recursive tracing
Author: Whitaker Brand (on 2019/09/19)

For each call to the following method, indicate what console output is produced:

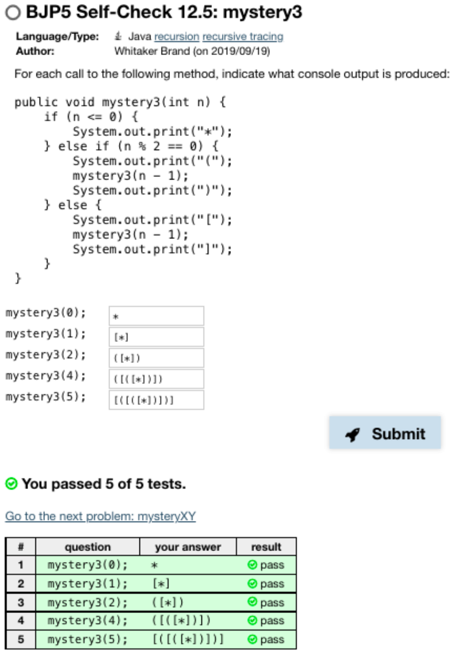
```
public void mystery2(int n) {
    if (n > 100) {
        System.out.print(n);
    } else {
        mystery2(2 * n);
        System.out.print(", " + n);
    }
}
```

mystery2(113); 113
mystery2(70); 140, 70
mystery2(42); 168, 84, 42
mystery2(30); 120, 60, 30
mystery2(10); 160, 80, 40, 20, 10

✓ **You passed 5 of 5 tests.**

Go to the next problem: mystery3

#	question	your answer	result
1	mystery2(113);	113	✓ pass
2	mystery2(70);	140, 70	✓ pass
3	mystery2(42);	168, 84, 42	✓ pass
4	mystery2(30);	120, 60, 30	✓ pass
5	mystery2(10);	160, 80, 40, 20, 10	✓ pass



○ BJP5 Self-Check 12.5: mystery3

Language/Type: Java recursion recursive tracing
Author: Whitaker Brand (on 2019/09/19)

For each call to the following method, indicate what console output is produced:

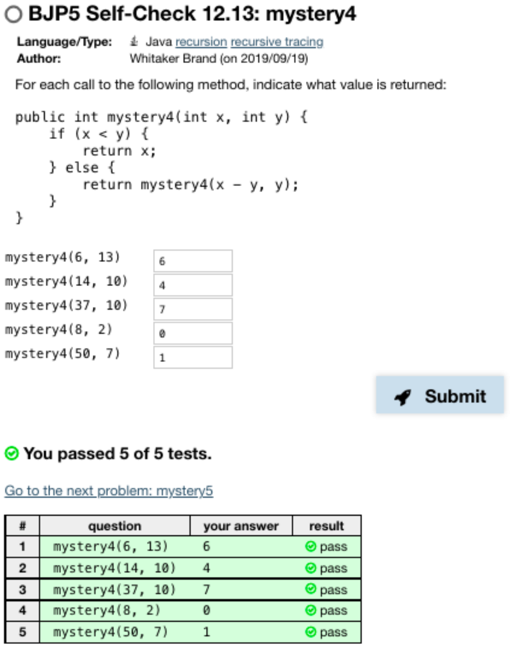
```
public void mystery3(int n) {
    if (n <= 0) {
        System.out.print("*");
    } else if (n % 2 == 0) {
        System.out.print("(");
        mystery3(n - 1);
        System.out.print(")");
    } else {
        System.out.print("[");
        mystery3(n - 1);
        System.out.print("]");
    }
}
```

mystery3(0); *
mystery3(1); [*]
mystery3(2); ([*])
mystery3(4); ([([*])])
mystery3(5); [([([*])])]

✓ **You passed 5 of 5 tests.**

Go to the next problem: mysteryXY

#	question	your answer	result
1	mystery3(0);	*	✓ pass
2	mystery3(1);	[*]	✓ pass
3	mystery3(2);	([*])	✓ pass
4	mystery3(4);	([([*])])	✓ pass
5	mystery3(5);	[([([*])])]	✓ pass



○ BJP5 Self-Check 12.13: mystery4

Language/Type: Java recursion recursive tracing
Author: Whitaker Brand (on 2019/09/19)

For each call to the following method, indicate what value is returned:

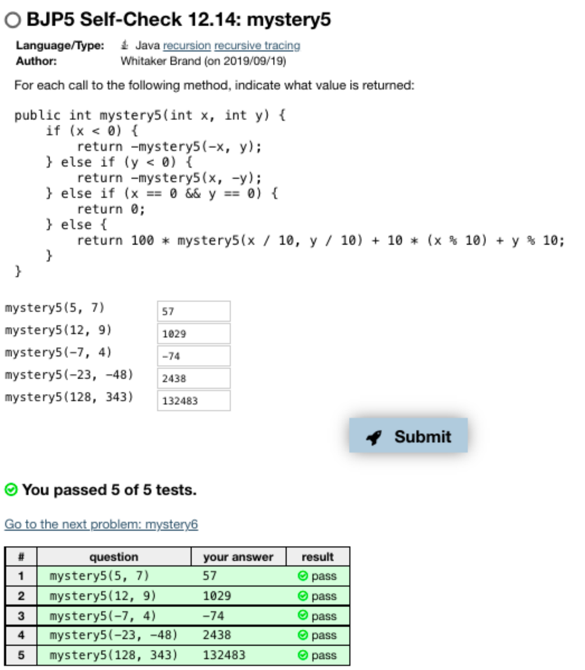
```
public int mystery4(int x, int y) {
    if (x < y) {
        return x;
    } else {
        return mystery4(x - y, y);
    }
}
```

mystery4(6, 13) 6
mystery4(14, 10) 4
mystery4(37, 10) 7
mystery4(8, 2) 0
mystery4(50, 7) 1

✓ **You passed 5 of 5 tests.**

Go to the next problem: mystery5

#	question	your answer	result
1	mystery4(6, 13)	6	✓ pass
2	mystery4(14, 10)	4	✓ pass
3	mystery4(37, 10)	7	✓ pass
4	mystery4(8, 2)	0	✓ pass
5	mystery4(50, 7)	1	✓ pass



○ BJP5 Self-Check 12.14: mystery5

Language/Type: Java recursion recursive tracing
Author: Whitaker Brand (on 2019/09/19)

For each call to the following method, indicate what value is returned:

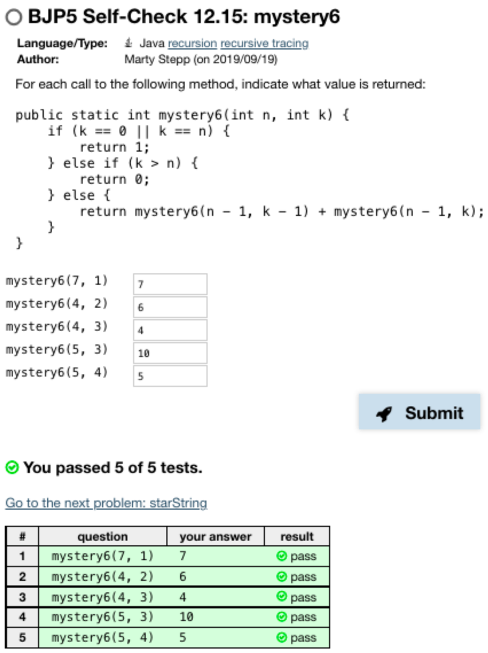
```
public int mystery5(int x, int y) {
    if (x < 0) {
        return -mystery5(-x, y);
    } else if (y < 0) {
        return -mystery5(x, -y);
    } else if (x == 0 && y == 0) {
        return 0;
    } else {
        return 100 * mystery5(x / 10, y / 10) + 10 * (x % 10) + y % 10;
    }
}
```

mystery5(5, 7)	57
mystery5(12, 9)	1029
mystery5(-7, 4)	-74
mystery5(-23, -48)	2438
mystery5(128, 343)	132483

✓ You passed 5 of 5 tests.

Go to the next problem: mystery6

#	question	your answer	result
1	mystery5(5, 7)	57	✓ pass
2	mystery5(12, 9)	1029	✓ pass
3	mystery5(-7, 4)	-74	✓ pass
4	mystery5(-23, -48)	2438	✓ pass
5	mystery5(128, 343)	132483	✓ pass



○ BJP5 Self-Check 12.15: mystery6

Language/Type: Java recursion recursive tracing
Author: Marty Stepp (on 2019/09/19)

For each call to the following method, indicate what value is returned:

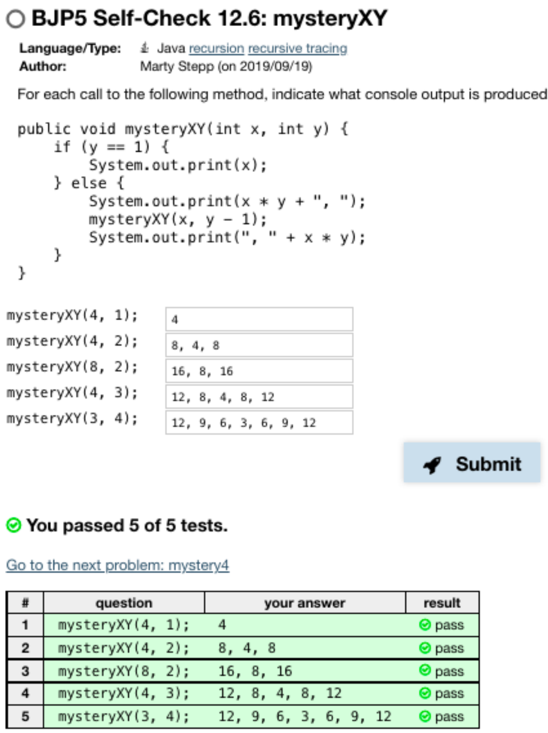
```
public static int mystery6(int n, int k) {
    if (k == 0 || k == n) {
        return 1;
    } else if (k > n) {
        return 0;
    } else {
        return mystery6(n - 1, k - 1) + mystery6(n - 1, k);
    }
}
```

mystery6(7, 1)	7
mystery6(4, 2)	6
mystery6(4, 3)	4
mystery6(5, 3)	10
mystery6(5, 4)	5

✓ You passed 5 of 5 tests.

Go to the next problem: starString

#	question	your answer	result
1	mystery6(7, 1)	7	✓ pass
2	mystery6(4, 2)	6	✓ pass
3	mystery6(4, 3)	4	✓ pass
4	mystery6(5, 3)	10	✓ pass
5	mystery6(5, 4)	5	✓ pass



○ BJP5 Self-Check 12.6: mysteryXY

Language/Type: Java recursion recursive tracing
Author: Marty Stepp (on 2019/09/19)

For each call to the following method, indicate what console output is produced:

```
public void mysteryXY(int x, int y) {
    if (y == 1) {
        System.out.print(x);
    } else {
        System.out.print(x * y + ", ");
        mysteryXY(x, y - 1);
        System.out.print(", " + x * y);
    }
}
```

mysteryXY(4, 1);	4
mysteryXY(4, 2);	8, 4, 8
mysteryXY(8, 2);	16, 8, 16
mysteryXY(4, 3);	12, 8, 4, 8, 12
mysteryXY(3, 4);	12, 9, 6, 3, 6, 9, 12

✓ You passed 5 of 5 tests.

Go to the next problem: mystery4

#	question	your answer	result
1	mysteryXY(4, 1);	4	✓ pass
2	mysteryXY(4, 2);	8, 4, 8	✓ pass
3	mysteryXY(8, 2);	16, 8, 16	✓ pass
4	mysteryXY(4, 3);	12, 8, 4, 8, 12	✓ pass
5	mysteryXY(3, 4);	12, 9, 6, 3, 6, 9, 12	✓ pass