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# 1

Write the output of the following program. Each line should be written in the corresponding textbox. There are 10 textboxes. If there are more than 10 outputs, only write the first 10. If there are fewer than 10 outputs, write 'x' (lowercase, no quotations, no whitespaces) in the empty textboxes.

Code:

---

```
#include <iostream>
using namespace std;

int main()
{
    int n = 2;
    while (n < 16) {
        cout << n + 1 << endl;
        n *= n;
    }
    cout << n << endl;
    cout << n++ << endl;
    n /= 3;
    cout << --n << endl;
    cout << n-- << endl;
    n %= n + 1;
    cout << n << endl;
    while (n >= 1) {
        cout << n * n-- << endl;
    }
    return 0;
}
```

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Note: The final while loop was dropped, and credit was given to all students for the corresponding final 3 outputs.

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Output:

---

3

5

16

16

4

4

3

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## 2

Write the output of the following program. Each line should be written in the corresponding textbox. There are 10 textboxes. If there are more than 10 outputs, only write the first 10. If there are fewer than 10 outputs, write 'x' (lowercase, no quotations, no whitespaces) in the empty textboxes.

Code:

---

```
#include <iostream>
using namespace std;

int main() {
    int arr[] = {3, 8, 5, 12, 7, 4, 0, 2, 9, 5};
    int size = 9;
    for (int i = 0; i <= size; i++) {
        if (arr[i] % 2 == 0) {
            arr[i] /= 2;
        } else if (arr[i] % 3 == 0) {
            arr[i] = arr[i] * 3 - 1;
        } else if (arr[i] % 4 == 0) {
            arr[i] -= 2;
        } else {
            arr[i] %= 11;
        }
    }
    for (int i = 0; i < size; i++) {
        cout << arr[i] << endl;
    }
    return 0;
}
```

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Output:

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8  
4  
5  
6  
7  
2  
0  
1  
26

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## 3

Write the output of the following program. Each line should be written in the corresponding textbox. There are 10 textboxes. If there are more than 10 outputs, only write the first 10. If there are fewer than 10 outputs, write 'x' (lowercase, no quotations, no whitespaces) in the empty textboxes.

Code:

---

```
#include <iostream>
using namespace std;

void func(int &a, int &b, int &c) {
    int temp = a;
    a = c;
    b = temp;
}

int main() {
    int x = 3, y = 5, z = 13;
    int *p = &x;
    int &r = y;
    int &q = y;
    cout << *p << endl;
    r = z - r;
    cout << ++r << endl;
    cout << q << endl;
    func(*p, r, q);
    cout << *p << endl;
    cout << r << endl;
    cout << q << endl;
    func(*p, --r, --q);
    cout << *p << endl;
    cout << r << endl;
    cout << q << endl;
    return 0;
}
```

---

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Output:

---

3  
9  
9  
9  
3  
3  
1  
9  
9

---

---

## 4

Write the output of the following program. Each line should be written in the corresponding textbox. There are 10 textboxes. If there are more than 10 outputs, only write the first 10. If there are fewer than 10 outputs, write 'x' (lowercase, no quotations, no whitespaces) in the empty textboxes.

Code:

---

```
#include <iostream>
using namespace std;

int main() {
    string s = "Mississippi";
    for (int i = 5; i < s.size() - 3; i++) {
        cout << s.substr(i, 2) << endl;
    }
    for (int i = 0; i < s.size()-4; i++) {
        cout << s.substr(s.find("s", i), s.find("s", i+3)) << endl;
    }
    return 0;
}
```

---

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Output:

---

ss  
si  
ip  
ssi  
ssiss  
ssiss  
sissip  
ssippi  
ssippi  
sippi

---