

$n=5, n=10$

Note Title

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1 4 9 16 25

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COL 100

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Loops on C++ :-

int i = 1; int j = 1;

if (cond) {
 cout << "Hi" << endl;
}

}

for i goes from
1 to n
while (cond)

- (a) Inputs a number : n
(b) Prints all the numbers from 1 to n

n = 10;

5
7
int i = 5; ++i
cout << i++;
cout << ++i;
i++;

pseudocode for i from 1 to 10

j = i * i;
print j;

int i = 5;
cout << i--;
cout << ++i;

for (int i = 1; i <= n; i++)
↓ initialization ↓ condition ↓ increment
① ② ③
~~i = 1;~~ ~~i <= n;~~ ~~i++;~~
↓ ↓ ↓
i = 1; i <= n; i++
not the first time

Aside: i = i + 1;
j = i++;
→ j = ++i;
i++;
i + 2;
j = i + 1;
5 6

~~int i~~

n = get Integer ("Enter n:");

"local"

for (int i = 0; (i < n); i++) {

i <= n
for (int i = 0; i <= n || i == n; i++) {

→ for (int i = n; i >= 0; i--) {
3 cout << i;

→ }
~~i = 5~~

i < 5 ✓ correct
→ Loop
execute

i < 5 cond execute

i < 5 cond error
i < 5 cond error

n = 5
5 4 3 2 1
i 1 0

\downarrow initials cond \rightarrow increment
 for (int $i=1$; $i \leq n$; $i++$) {
 \downarrow cout << $i \times i$; ~~$\left\{ \begin{array}{l} \text{int } i = i \times i; \\ \text{cout} << i; \end{array} \right\}$~~ cout << $2 \times i$;
 }

}

for (int $i=0$; $i < n$; $i++$) {

\downarrow

}

$\frac{n=5}{2 \quad 4 \quad 6 \quad 8 \quad 10}$

```

for (int i=2; i <= 2*n; i=i+2)
{
    cout << i;
    break;
}

```

Input a number: - n
 checks whether it is
 prime or not.

prime \rightarrow cout << "is prime";
 not prime \rightarrow cout << "Not prime";

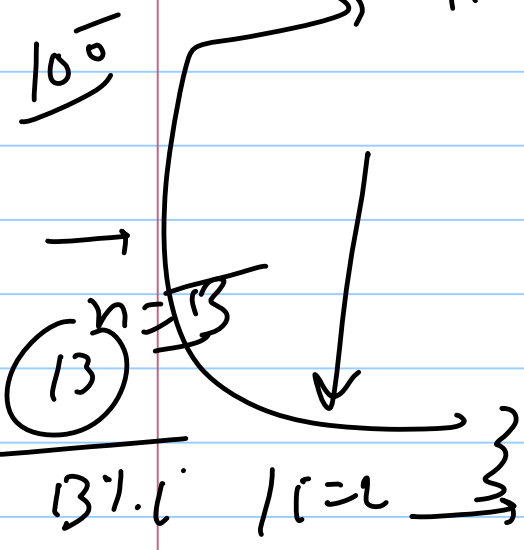
100 $n \% i$ $\frac{n}{2}$ $\frac{n-1}{2}$

 n is divisible by 2
 n is not divisible by 2

$n = 100;$
 ↓ bool isPrime = true;
 → int n = getInteger("Enter a no:");

for (int i = 2; i < n; i++) {

if (n % i == 0) {
 isPrime = false;
 break;
 }



cout << "isPrime = " << isPrime;
 12 9 3

```
int n = .getInteger("Enter:");
```

```
int i = 1; i <= n
```

```
while (cond) {
```

```
    cout << 2 * i;
```

```
    i++; ++i;
```

H.W.:-

Write
your #
program

wrong
while loop

```
for (int i = 1; i <= n; ++i) {
```

}

$n=5$

int $n=5$;

→ for (int $i=1$; $i \leq n$; $i++$) {

→ for (int $j=i$; $j \leq n$; $j++$) {

$i \geq 3$

cout << j ;

}
cout << endl;

| |
|-----------|
| 1 |
| 1 2 |
| 1 2 3 |
| 1 2 3 4 |
| 1 2 3 4 5 |

int $n=5$;

for (int $i=1$; $i \leq n$; $i++$) {

cout << i ;

3

| |
|---------|
| 1 |
| 2 1 |
| 3 2 1 |
| 4 3 2 1 |

Q n = 5

H.W.

↓

| | | | | |
|---|---|---|---|---|
| X | X | X | X | 1 |
| X | X | X | 2 | 1 |
| X | X | 3 | 2 | 1 |
| X | 4 | 3 | 2 | 1 |
| 5 | 4 | 3 | 2 | 1 |

→ using for loops (noted)