

// given grade g print A, B, C, D, F

```
if (g >= 90)
{
    printf("A");
}
else
{
    if (g >= 80)
    {
        printf("B");
    }
    else
    {
        if (g >= 70)
        {
            printf("C");
        }
        else
        {
            if (g >= 60)
            {
                printf("D");
            }
            else
            {
                printf("F");
            }
        }
    }
}
}
```

```
if (g >= 90)
{
    printf("A");
}
else if (g >= 80)
{
    printf("B");
}
else if (g >= 70)
{
    printf("C");
}
.
.
.
```

if (condition)

block

else

block

} option

Block defined as: single statement ;

OR

{  
1 or more single statements ;  
}

if (condition)

{

printf("Hello");

}

else

{

printf("Goodbye");

}

← optional

← "

← "

← "

## Closer look at condition

$g \geq 60$

$> =$

$>$

$< =$

$<$

$==$  equality

$!=$  not equal

Conditions evaluate to TRUE or FALSE

the value 0 represents FALSE

any other value represents TRUE

```
if (17)
    printf("A");
else
    printf("B");
```

```
int x;
```

```
x = 5;
```

```
if (x = 7)
```

```
    printf("A");
```

```
else
```

```
    printf("B");
```

This prints A - Seven is assigned  
to x. 7 is true

You likely meant `if (x == 7)`

---

```
printf("%d", x == 5)
```

would print 0 if  $x \neq 5$

" " 1 or -1 or something non-zero  
if x was 5

# Compound logical expressions

verify  $90 \leq g \leq 100$

logical operators

&& logical AND

|| " OR

! " NOT

if  $((90 \leq g) \&\& (g \leq 100))$   
==

## expressions

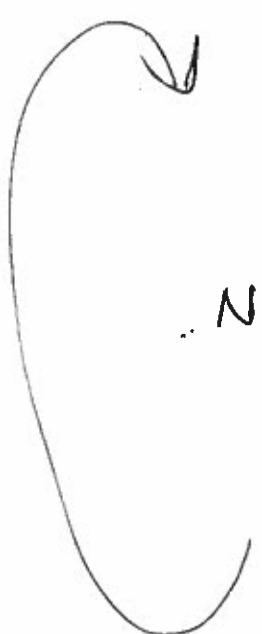
int p ;

int q = 17 ;

int m = 5 , n = 93 ;

expression	result
$3 + 7 * 10$	73
$(3 + 7) * 10$	100
$20 / 2$	10
$22 / 3$	7 (NOT $7.\bar{3}$ )
$9 / 10$	0
$200 / 201$	0
$12 \% 10$	2
$23 \% 5$	3
$3 \% 5$	3

$$N = N + 1$$


$$N = (N + 1) \% 5$$

$$N = N + 1$$

$$\text{if } (N > 4)$$

$$N = 0;$$

---

$$N = N - 1$$

$$\text{if } (N < 0)$$

$$N = 4;$$

$$N = (N + \del{5}{4}) \% 5$$

Before N	After N
1	0
2	1
3	2
4	3
0	4