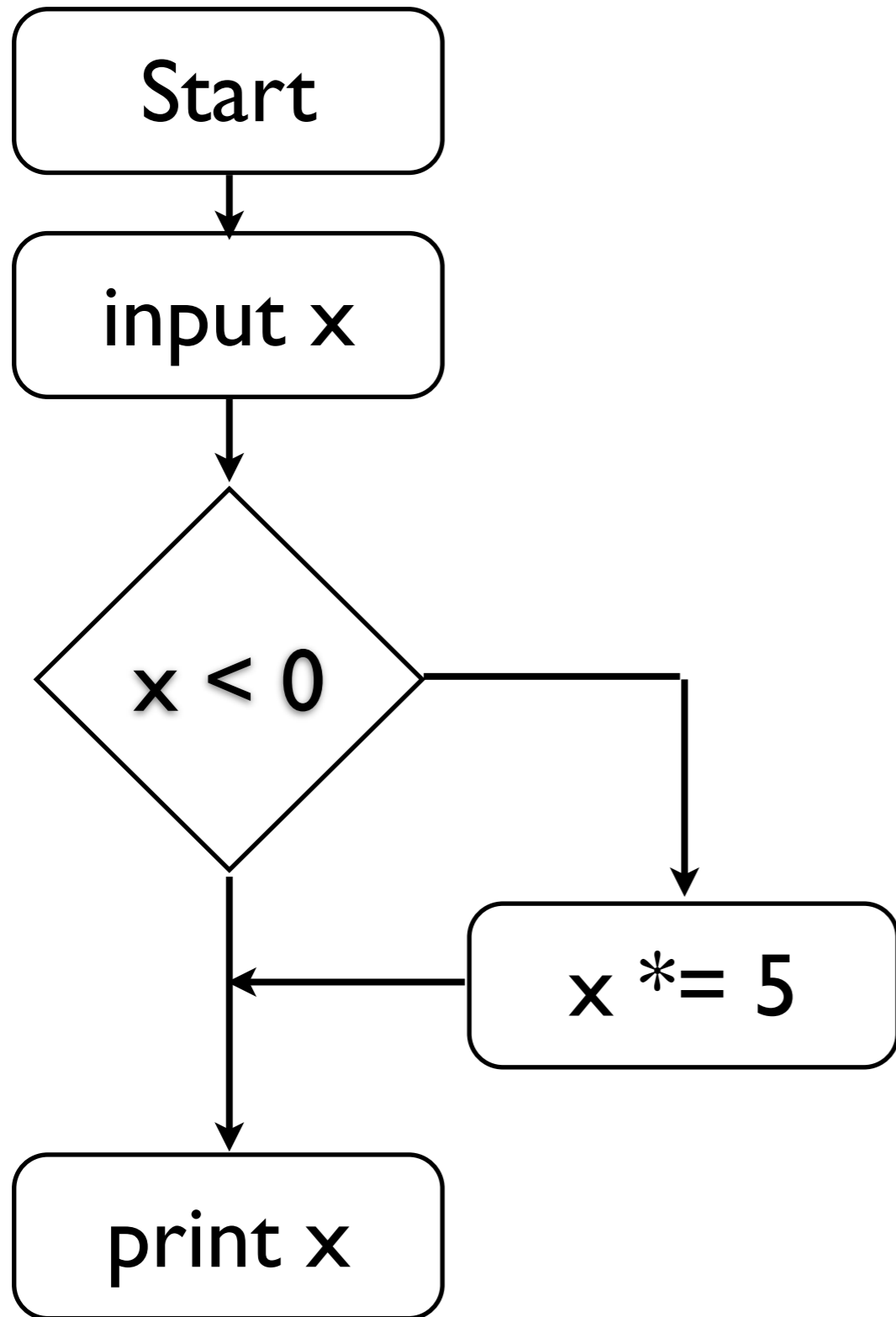


Conditionals

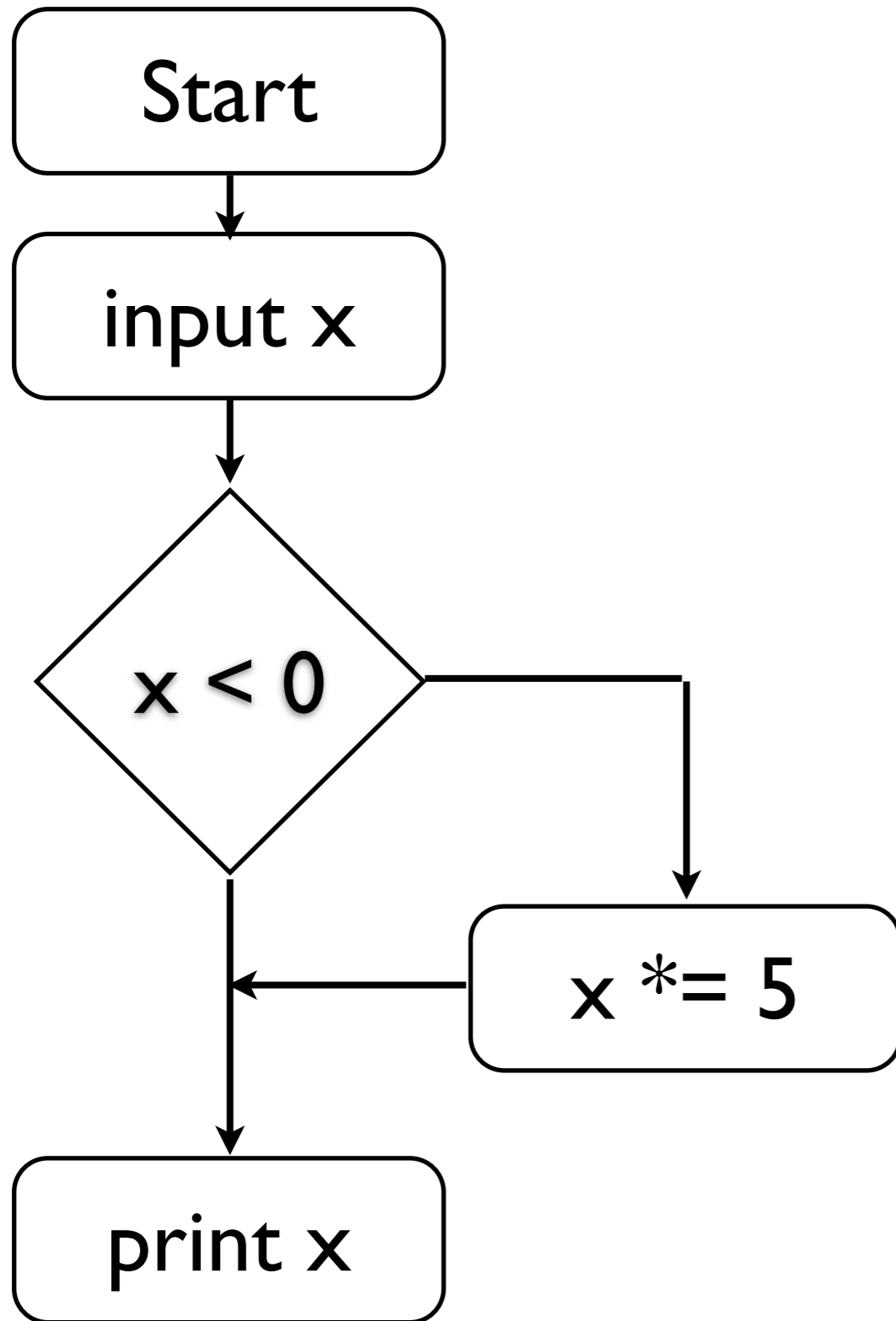
By Mr. F

Flow Chart



Input	6	-5
Output	6	-25

Flow Chart



```
public static void main(String[] args)
{
    int x = ...;
    if( x < 0 )
    {
        x *= 5;
    }
    System.out.println(x);
}
```

Input	6	-5
Output	6	-25

if case rules

- After the if, the condition must be in parenthesis
- The if case begins with a bracket and ends with a bracket
- The conditional code goes between the brackets
- **NO SEMICOLON AFTER THE PARENTHESIS**

```
if( x < 0 )  
{  
    x *= 5;  
}
```

Logical Comparison

- Numeric (int's and double's)

```
if(x < 3)
{
    //do something
}
```

```
if(x > 4)
{
    //do something
}
```

```
if(x <= 3)
{
    //do something
}
```

```
if(x >= 3)
{
    //do something
}
```

Equality

- Numeric (only works well for int's)

```
if(x == 3)
{
    //do something
}
```

```
if(x = 3)
{
    //do something
}
```

Equality

- Numeric (only works well for int's)

```
if(x == 3)
{
    //do something
}
```

```
if(x = 3)
{
    //do something
}
```

Equality

- Numeric (only works well for int's)

```
if(x == 3)
{
    //do something
}
```

```
if(x = 3)
{
    //do something
}
```

For double's, you'd have to check if a value is close enough because of double imprecision (0.300000000000000000000004)

Not Equal

- Numeric (only works well for int's)

```
if(x != 3)
{
    //do something
}
```

Boolean Operators

- Combining Logic - AND
- $x > 3$ AND $x < 5$



```
if(x > 3 && x < 5)
{
    System.out.println(x);
}
```

x	-1	4	7
out		4	


Boolean Operators

- Combining Logic - AND
- AND's are true only if BOTH conditions are true

A	B	A && B
F	F	F
F	T	F
T	F	F
T	T	T

Boolean Operators

- Combining Logic - OR
- $x < 3$ OR $x > 5$



```
if(x < 3 || x > 5)
{
    System.out.println(x);
}
```

x	-1	4	7
out	-1		7


Boolean Operators

- Combining Logic - OR
- OR's are true if EITHER conditions are true

A	B	A && B
F	F	F
F	T	T
T	F	T
T	T	T

Boolean Operators

- Logic - NOT
- NOT $x < 3$


`if(!(x < 3))
{
 System.out.println(x);
}`

x	0	5
out		5

Boolean Operators

- Logic - NOT
- NOT's are true if the condition is false

A	!A
F	T
T	F

Comparing Char's

- How to tell if a char is uppercase:

```
char letter = ...;
```

```
if(letter >= 'A' && letter <= 'Z') {  
    //do something  
}
```

Order of Ops

- `()`, `!`, `&&`, `||`

```
int x = 3;
```

True or False: `(x > 3) || !(x >= 5) && (x < 0)`

F || !(F) && F

F || T && F

F || F

F