

OOP 1/16/26

1) Circle3.java - reads input, uses assign stmt

Note: if necessary, read typed notes on your own + look @ all examples

2) Boolean Expressions + If Stmt

### Circle 3

User enters how much fence they have (length) - double

Goal - figure out max area that can be enclosed.

How to do this - input is circumference  
output area of circle

$$C = 2\pi r$$

$$r = \frac{C}{2\pi}$$

create new var to store r.

$$A = \pi r^2$$

now do this.

Assignment Statement =

var = expr;

① Evaluate the expr at that snapshot in time

② Change var to that value

# Circle Ed.t

radius 30 20

area = ~~140~~ 3.14 \* radius \* radius

area 2728.8

radius = 20

If stmt

## Boolean expressions

okay true

boolean okay = true;

~~okay~~

Relational operators (compare 2 quantitative values or expressions)

> greater than

>= G.T.E

< L.T. Less than

<= L.T.E

== equal to

!= not equal to

types: byte, short, int, long, float, double

Natural floating pt error

↓  
when we look @ math library, I'll show you how to do equality w/ doubles.

age >= 16

↑ int variable

in C, there is no boolean type, just int → so Java requires boolean expressions in certain places

# Complex Boolean Expressions

AND

&&

#

b1	T	F
T	T	F
F	F	F

OR

||

b1	T	F
T	T	T
F	T	F

NOT

!

!(age >= 16)

true when age < 16

! true = false

! false = true

b1 && b2

only true if both are true

b1 || b2

only false if both are false

Ver #1 if

```
if (boolean exp)
    stmt;
```

- eval bool exp
- if true do stmt otherwise skip it.

if (boolean exp) stmt;

```
if (boolean exp) {
    stmt1;
    stmt2;
    stmt3;
    :
    stmtk;
}
```

some people put open here

# if-else

if (bool exp) {

    stmts A

}

else {

    stmt B

}

① eval bool exp

② if true do stmts A

③ if not do stmts B