The Java Math Class

University of Mount Union

CSC 120

Lecture 37

The Math class in Java

- Java supports many more mathematical functions and operations than are provided with the operator symbols we've seen so far:

+ - * / %

- These more advanced operations are methods defined for the Math class

- The methods are ***static*** methods, meaning you call them with the Class name to the left of the dot, not an object from that Class

Some Math Class constants

Math.PI

Math.E -- base of natural logarithms

Some Math Class methods

Math.abs(x)

Returns the absolute value of x (the number with no sign)

if x is an Integer, result is an Integer; if x is a Double, result is a Double

```
Integer  m  =  Math.abs( -47 );     // m would be 47

Double  q  =  Math.abs(  -1.02 );   // q would be 1.02
```

Some Math Class methods

Math.sin(x), Math.cos(x), Math.tan(x)

Returns the trig functions sine, cosine and tangent x

x is specified in Radians: 180 degrees = π radians = Math.PI radians

Some Math Class methods

Math.pow(base, expon)

Returns base raised to the expon power $base^{expon}$

Result is a Double

```
Double  result  =  Math.pow ( 3, 4 );     //  result = 81.0
```

Some Math Class methods

Math.sqrt(x)

Returns the positive square root value of x

x is an Integer or a Double, result is a Double

```
Double root  =  Math.sqrt( 49 );   // root would be 7.0

Double  q  =  Math.sqrt(  2.25 );  // q would be 1.5
```

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