

AP CS: Lesson 8: Math Returns & Scanners

Name: _____ Period: ____

Java Syntax:

Key Math Methods:

```
Math.abs(value) // absolute value
Math.ceil(value) // rounds up
Math.floor(value) // rounds down
Math.log10(value) // logarithm, base 10
Math.max(value1, value2) // larger of two values
Math.min(value1, value2) // smaller of two values
Math.pow(base, exp) // base to the exp power
Math.random() // random double between 0 and 1
Math.round(value) // nearest whole number
Math.sqrt(value) // square root
Math.sin(value) // sine of an angle in radians
Math.cos(value) // cosine of an angle in radians
Math.tan(value) // tangent of an angle in radians
Math.toDegrees(value) // convert radians to degrees
Math.toRadians(value) // convert degrees to radians
```

Type Casting (converting from one type to another):

```
(type) expression
```

Examples:

```
double result = (double) 19 / 5; // 3.8
int result2 = (int) result; // 3
int x = (int) Math.pow(10, 3); // 1000
```

Scanner Objects (subset for console reading only, more later)

Required Library for these: (placed above the Class creation)

```
import java.util.*; // required for Scanner Object
```

Scanner Creations:

```
Scanner name = new Scanner(source);
```

Example:

```
Scanner console = new Scanner(System.in); // creates Scanner named
// "console" that reads from the input (keyboard)
```

Scanner Methods: (console is the Scanner object)

```
console.nextInt() reads an int from the user and returns it
console.nextDouble() reads a double from the user
console.next() reads a one-word String from the user
console.nextLine() reads a one-line String from the user
```

Class Notes:

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Exit Ticket - Please answer and return at end of period. Thanks.

1. I understand how to use for loops to make interesting Graphics: Yes Somewhat No
2. I understand how to scale Graphics with parameters: Yes Somewhat No
3. I understand how to use Math methods for calculations: Yes Somewhat No

Additional comments, especially if you answered "No" to any of the above what would you like to more details on? Thanks
