CompSci 6
Programming Design and Analysis

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Announcements

• Read for next time Chap. 6.1-6.2, 7.1-7.4
  – Loops – while/for
  – Arrays, ArrayList

• Reading Quiz for next time

• No Assignment, just finish classwork
Chapter 4.1- 4.5 – Data Types

• Eight primitive types!
  – We’ll mostly use int, double, char, boolean

• Convert int to double
  
  ```java
  int min = 4;
  double dmin = min * 1.0;
  ```

• Convert double to int
  
  ```java
  double dmin = 4.2;
  int min = (int) dmin; // truncates
  ```
Constants

• Constants in a class

```java
private static final RADIUS = 30.0;
```

– Private – only accessible in the class
– Static – belongs to the class
– Final – cannot change its value
Math Functions

- Math.floor(4.2) is
- Math.ceil(4.2) is
- Math.max(5.3, 6.2) is
- Math.min(3, 8) is
Classwork Today - Animation

- Canvas
Canvas Details

• What are the dimensions of the Canvas?
  – java.awt.Dimension

• Creating the Canvas

  final java.awt.Dimension SIZE =
    new java.awt.Dimension(600, 600);
  Canvas display = new Canvas(SIZE);

• Accessing the dimensions

  int height = SIZE.height;
  int width = SIZE.width;
Paint a circle

• Center of the screen
  – Point (x, y)
  – java.awt.point
Point center =
  new Point(?, ?);

• Pen
  – Set the color
    Java.awt.Color.RED
  – Fill the oval
Paint a Circle (cont)

• Canvas has a special method
  – `paintComponent`
  – (must spell it exactly this way)
  – This method is automatically invoked when an event occurs
    • When main sets `isVisible` to true
    • When a window is resized
Classwork today

- Modify the Canvas class to get the circle to move
- Modify the Canvas class to get the circle to bounce inside the canvas
- Add a new class Bouncer to create a circle that bounces
- Create two bouncing circles