Sven Kappeler - Racket Assignment #1: First Interactions

Learning Abstract

This assignment is an introduction to the Racket programming language. The purpose of this assignment is to get myself acquainted with using DrRacket and using the Racket programming language.

Interaction: Simple Numeric Processing

```
> 55
55
> 55.2
55.2
> pi
3.141592653589793
> ( * 3 8 )
24
> ( + ( * 3 8 ) 6 )
30
> ( expt 2 8 )
256
> ( * pi ( expt 7 2 ) )
153.93804002589985
> ( expt 9 50 )
515377520732011331036461129765621272702107522001
```

Interaction: Area Problem

```
> ( define side-of-tile 200 )
> ( define diameter-of-dot ( / side-of-tile 3) )

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> ( define diameter-of-dot ( / side-of-tile 3) )

> ( define radius-of-dot ( / diameter-of-dot 2 ) )
> ( define total-tile-area ( expt side-of-tile 2 ))
> ( define red-dot-area ( * pi ( expt radius-of-dot 2 ) ) )

> ( define blue-tile-area ( - total-tile-area red-dot-area ) )
> side-of-tile
200
> diameter-of-dot
66 2/3
> radius-of-dot
33 1/3
> total-tile-area
40000
> red-dot-area
3490.658503988659
> blue-tile-area
36509.341496011344
>
```
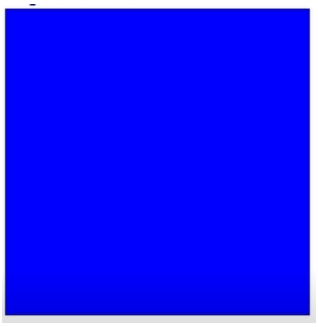
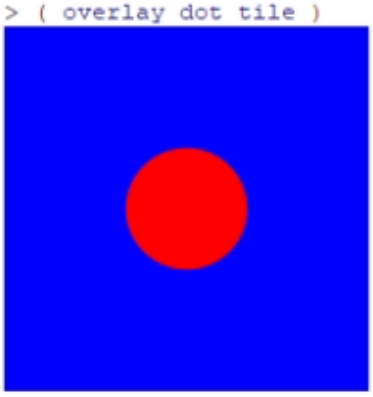

Interaction: Illustration of the Area Problem

```
> ( require 2htdp/image )
> ( define side-of-tile 200 )
> ( define diameter-of-dot ( / side-of-tile 3 ) )
> ( define radius-of-dot ( / diameter-of-dot 2 ) )
> ( define tile ( square side-of-tile "solid" "blue" ) )
> tile
```



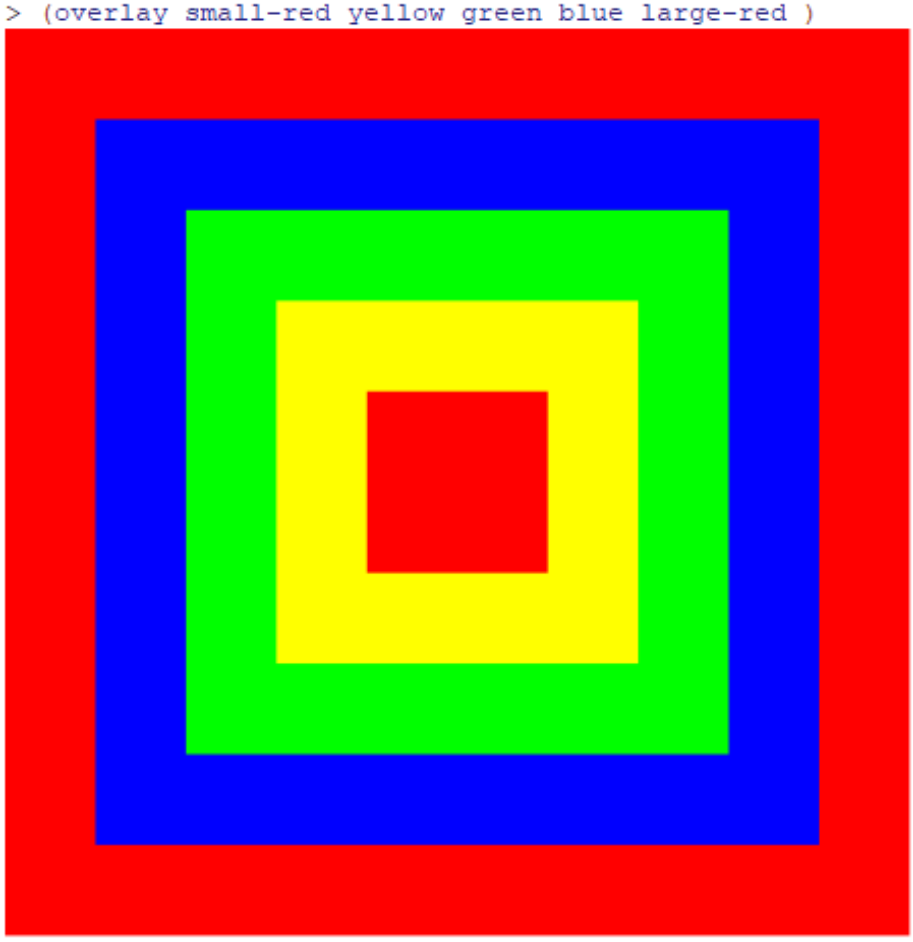
```
> ( define dot ( circle radius-of-dot "solid" "red" ) )
> dot
```

```
> ( overlay dot tile )
```



Interaction: Illustration of Concentric Squares

```
> ( require 2htdp/image )
> ( define side-of-small-red 88.88 )

> ( define side-of-yellow ( * side-of-small-red 2 ) )
> ( define side-of-green ( * side-of-small-red 3 ) )
> ( define side-of-blue ( * side-of-small-red 4 ) )
> ( define side-of-big-red ( * side-of-small-red 5 ) )
> ( define small-red ( square side-of-small-red "solid" "red" ) )
> ( define yellow ( square side-of-yellow "solid" "yellow" ) )
> ( define green ( square side-of-green "solid" "green" ) )
> ( define blue ( square side-of-blue "solid" "blue" ) )
> ( define large-red ( square side-of-large-red "solid" "red" ) )

> ( define large-red ( square side-of-big-red "solid" "red" ) )

> (overlay small-red yellow green blue large-red )
```



Interaction: Illustration of Concentric Squares

```
> ( define red-area ( * ( / ( + ( expt small-square 2 )
                      ( - ( expt ( * small-square 5 ) 2 )
                      ( expt ( * small-square 4 ) 2 ) ) )
                      ( expt ( * small-square 5 ) 2 ) ) 100 ) )
> red-area
40.0
```