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# Unit Testing using Racket

Robert Keller  
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## What is this?

- **Unit testing** means devising tests for smaller building-blocks in order to increase confidence that the final system will work.
- The tests can also serve a second function: **Documenting expected behavior**. This can be useful when others join the project.

## Testing Frameworks

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- Unit testing frameworks are common throughout software development in the current era.
- These frameworks go by names such as JUnit, CppUnit, PyUnit, PHPUnit, JsUnit, etc.
- If you ever desire to work in the industry or research, exhibiting a knowledge of unit testing can enhance your prospects.

## Racket specifically

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- Racket has a testing framework RackUnit, but we will prefer a much simpler model for now:

(require htdp/testing)

[Incant this early in your file]

- htdp = “How to Design Programs”, a book

## Special Forms

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(check-expect <expression> <expected result>)

(check-within <expression>  
                  <expected> <tolerance>)

(check-error <expression>)

(check-range <expression> <low> <high>)

(check-member-of <expression>  
                  <result1> <result2> ...)

## Finishing Up

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- At the end of your file, include

(generate-report)

To get a report of how many errors (hopefully none)