

Introdução ao Ruby

\$whoami

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Orientada a objetos
Dinâmica Fortemente tipada
Open source Sintaxe elegante

“Ruby is designed to make
programmers happy”

Yukihiro Matsumoto, criador do Ruby

Sintaxe

A screenshot of the VIM text editor interface. The title bar at the top reads "hello_world.rb + ...ects/scripts) - VIM". The main editor area shows two lines of code:

```
1 puts "Hello, world!" |  
2
```

The first line is highlighted with a light purple background. To the left of the code, there is a vertical column of blue squiggle symbols (~). The status bar at the bottom displays the file type and number of lines: "<rb (ruby) [+] 1,22". Below the status bar, a dark bar indicates the current mode: "-- INSERT --".



~ — zsh

brianstorti at ~
\$ ruby hello_world.rb
Hello, world!

brianstorti at ~
\$ █

A screenshot of a VIM editor window titled "hello_world.rb + ...ects/scripts) - VIM". The code in the buffer is:

```
1 class MinhaClasse
2   # comentário
3   def meu_metodo
4     "valor retornado"
5   end
6 end
7
8 instancia = MinhaClasse.new
9 instancia.meu_metodo
10 # => valor retornado
```

The status bar at the bottom shows the file path "

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 class MinhaClasse
2   def self.metodo
3     puts "método de classe"
4   end
5 end
6
7 MinhaClasse.metodo |
```

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<9.rb (ruby) [+] 7,20
--- INSERT ---

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 class MinhaClasse
2     class << self
3         def metodo
4             puts "método de classe"
5         end
6     end
7 end
8
9 MinhaClasse.metodo
```

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<9 .rb (ruby) [+] 9,21
--- INSERT ---

A screenshot of the VIM text editor on a Mac OS X system. The window title is "09.rb + (~) - VIM". The code in the buffer is:

```
1 class MinhaClasse
2 end
3
4 def MinhaClasse.metodo
5   puts "método de classe"
6 end
7
8 MinhaClasse.metodo |
```

The line "MinhaClasse.metodo" is highlighted with a red rectangle. The status bar at the bottom shows "<9 .rb (ruby) [+] 8,22" and "--- INSERT ---". On the left margin, there are several blue tilde (~) symbols.

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The code in the buffer is:

```
1 class MinhaClasse
2 end
3
4 a = MinhaClasse.new
5 b = MinhaClasse.new
6
7 def a.metodo
8     puts "método da instância a"
9 end
10 a.metodo
11 b.metodo # Erro |
```

The line numbers are in white, the class name "MinhaClasse" is in red, method names "metodo" are in orange, and the error message "# Erro" is in gold. The status bar at the bottom shows "<9.rb (ruby) [+] 11,17" and "--- INSERT ---".

Construtor

```
1 class MinhaClasse
2     def initialize(param)
3         @param = param
4     end
5 end
6
7 MinhaClasse.new(10) |
```

~
~
~
~

<rb (ruby) [+] 7,21
-- INSERT --

Parâmetros opcionais

```
1 class MinhaClasse
2     def metodo(param = "")
3         puts param
4     end
5 end
6
7 instancia = MinhaClasse.new
8 instancia.metodo
9 instancia.metodo("param") |
10
```

~

<rb (ruby) [+] 9,27

-- INSERT --

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 class MinhaClasse
2   def metodo(*params)
3     puts params
4   end
5 end
6
7 a = MinhaClasse.new
8 a.metodo
9 a.metodo(1, 2, 3)
10 a.metodo(1, "String", 2)
```

The code uses syntax highlighting where classes are red, methods are orange, and strings are green. The status bar at the bottom shows the file name "<9.rb (ruby) [+] 10,26" and the mode indicator "-- INSERT --".

A screenshot of a VIM window displaying a Ruby script named '09.rb'. The code defines a class 'MinhaClasse' with a method 'metodo' that prints its arguments. It then creates an instance 'a' and calls 'metodo' with different argument types. The VIM status bar at the bottom shows the file name, line count (11, 26), and the INSERT mode indicator.

```
09.rb + (~) - VIM
+09.rb
1 class MinhaClasse
2     def metodo(a, *b)
3         puts a
4         puts b
5     end
6 end
7
8 a = MinhaClasse.new
9 a.metodo # Erro
10 a.metodo(1, 2, 3)
11 a.metodo(1, "String", 2)

<9.rb (ruby) [+] 11,26
-- INSERT --
```

Herança

```
1 class Pai
2
3 end
4
5 class Filha < Pai
6
7 end
```

~
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<rb (ruby) [+] 7,05
-- INSERT --

```
1 class MinhaClasse
2   def get_var
3     return @var
4   end
5
6   def set_var(value)
7     @var = value
8   end
9 end |
```

~

~

<rb (ruby) [+] 9,05
-- INSERT --

```
1 class MinhaClasse
2   def get_var
3     return @var
4   end
5
6   def set_var(value)
7     @var = value
8   end
9 end |
```

~
~

<rb (ruby) [+] 9,05

-- INSERT --

```
1 class MinhaClasse
2   attr_accessor :var
3 end
4
5 instancia = MinhaClasse.new
6 instancia.var = "valor"
7 puts instancia.var |
```

~
~
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~

<rb (ruby) [+] 7,20
-- INSERT --

```
1 class MinhaClasse
2   def var=(value)
3     @var = value
4   end
5
6   def var
7     @var
8   end
9 end
```

~
~

<rb (ruby) [+] 7,10

-- INSERT --

Métodos com
caracteres especiais

**mais
expressividade**

```
1 def do!
2
3 end
4
5 def should_i_do?
6
7 end |
```

~
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<rb (ruby) [+] 7,05
-- INSERT --

BLOCOS

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 a = [1, 2, 3]
2
3 a.each do
4   puts "bloco"
5 end
6
7 a.each { puts "bloco" }
```

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<9.rb (ruby) [+] 7,26
--- INSERT ---

**Blocos também
podem ter parâmetros**

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 a = [1, 2, 3]
2
3 a.each do |item|
4   puts item
5 end
6
7 a.each { |item| puts item } |
```

~~~~~

<9.rb (ruby) [+] 7,30  
--- INSERT ---

A screenshot of the VIM text editor on a Mac OS X system. The window title is "09.rb + (~) - VIM". The code in the buffer is:

```
1 def meu_metodo
2     puts yield
3 end
4
5 meu_metodo do
6     "Hello, world!"
7 end |
```

The code uses syntax highlighting where numbers are orange, method names and variable names are white, and strings are green. The status bar at the bottom shows the file name "<9.rb (ruby) [+] 7,06" and the mode indicator "-- INSERT --". To the left of the status bar, there are seven blue tilde (~) characters.

A screenshot of a Mac OS X application window titled "09.rb + (~) - VIM". The window contains a Vim editor displaying Ruby code. The code defines a method `meu\_metodo` that prints "world" and "ruby" using `yield`. It then calls this method with a block that prints "Hello, " followed by a parameter. The code is numbered from 1 to 11. The bottom status bar shows the file name "**<9.rb** (ruby) [+] 11,19" and the mode indicator "**-- INSERT --**".

```
1 def meu_metodo
2   puts yield("world")
3   puts yield("ruby")
4 end
5
6 meu_metodo do |param|
7   "Hello, " + param
8 end
9
10 # => Hello, world
11 # => Hello, ruby
```

# Módulos

2

Utilizações  
comuns

# 1 Namespaces

```
1 module Namespace1
2   class A
3     def method
4       puts "namespace1"
5     end
6   end
7 end
8
9 module Namespace2
10  class A
11    def method
12      puts "namespace2"
13    end
14  end
15 end
16
17 a1 = Namespace1::A.new
18 a1.method # => "namespace1"
19 a2 = Namespace2::A.new
20 a2.method # => "namespace2"
```

**Classes com o mesmo nome  
em namespaces diferentes**

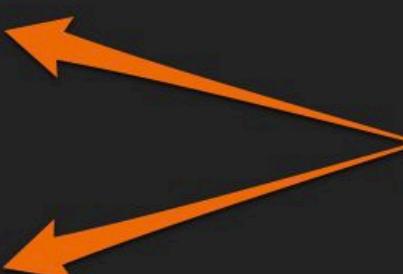
**Instanciando classes de  
um namespace específico**

2

Mixins

```
syntax4.rb (~/Dropbox/simposio/exemplos) – VIM2
```

```
1 module Debug
2   def who_am_i?
3     self.class.name
4   end
5 end
6
7 class A
8   include Debug
9 end
10
11 class B
12   include Debug
13 end
14
15 A.new.who_am_i?
16 B.new.who_am_i?
```



**incluir todos os métodos  
do módulo a essa classe**

A screenshot of the VIM3 text editor window. The title bar reads "syntax5.rb (~/Dropbox/simposio/exemplos) – VIM3". The main area displays the following Ruby code:

```
1 module Somavel
2   def sum
3     inject{ |i,j| i + j }
4   end
5 end
6
7 class Array
8   include Somavel
9 end
10
11
12 class Range
13   include Somavel
14 end
15
16 puts [1,2,3,4].sum # => 10
17 puts ('a'..'z').sum # => abcdefghijklmnopqrstuvwxyz
```

The code uses color-coded syntax highlighting: numbers are green, strings are red, and variable names are orange. The file path "syntax5.rb" is shown in the bottom left, along with the Ruby version "[] [ruby-1.8.7-p352]". The bottom right corner shows the status "52, 17/17 All". A vertical blue scroll bar is visible on the right side of the editor window.

# Iterações

```
1 #loop infinito
2
3 loop do
4   puts "code"
5 end |
```

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~

<rb (ruby) [+] 5,05  
-- INSERT --

A screenshot of the VIM text editor interface. The title bar at the top center reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 while true do
2   puts "code"
3 end
```

The first three lines of the code are highlighted with a light purple background. To the left of the code area, there is a vertical column of blue question marks (~). The status bar at the bottom shows the file name "<rb (ruby) [+] 3,05" and the mode indicator "-- INSERT --".

```
1 begin
2   puts "code"
3 end while true
```

~ ~ ~ ~ ~

<rb (ruby) [+] 3,16  
-- INSERT --

```
1 #executa o bloco até  
2 #a condição ser verdadeira  
3  
4 until false do  
5   puts "code"  
6 end
```

~  
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<rb (ruby) [+] 6,06  
-- INSERT --

A screenshot of the VIM text editor interface. The title bar at the top center reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 begin
2   puts "code"
3 end until true |
```

The first three lines of code are highlighted with a light purple background. To the left of the code area, there is a vertical column of blue question mark symbols (~). The status bar at the bottom shows the file path "<rb (ruby) [+] 3,16" and the mode indicator "-- INSERT --".

```
1 array = [1, 2, 3, 4, 5]
2
3 for item in array do
4   puts item
5 end
```

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~  
~  
~  
~  
~  
~

<rb (ruby) [+] 5,05  
-- INSERT --

```
1 array = [1, 2, 3, 4, 5]
2
3 array.each do |item|
4   puts item
5 end
```

~  
~  
~  
~  
~  
~  
~  
~

<rb (ruby) [+] 5,05  
-- INSERT --

```
1 10.times do
2   puts "code"
3 end |
```

~ ~ ~ ~ ~

<rb (ruby) [+] 3,05  
-- INSERT --

```
1 5.upto 10 do
2   puts "code"
3 end
```

~ ~ ~ ~ ~

<rb (ruby) [+] 3,05  
-- INSERT --

```
1 10.downto 5 do
2   puts "code"
3 end
```

~ ~ ~ ~ ~

<rb (ruby) [+] 3,06  
-- INSERT --

# Condicionais

A screenshot of the VIM text editor interface. The title bar at the top center reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 if true
2   #code
3 else
4   #code
5 end |
```

The first five lines of code are highlighted with a light purple background. To the left of the code area, there is a vertical column of blue tilde (~) characters. The bottom status bar shows the file name "<rb (ruby) [+] 5,05" and the mode indicator "-- INSERT --".

A screenshot of the VIM text editor interface. The title bar at the top center reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 if true
2   #code
3 elsif true
4   #code
5 end |
```

The first five lines of code are highlighted with a light purple background. To the left of the code area, there is a vertical column of blue tilde (~) characters. The bottom status bar shows the file name "<rb (ruby) [+] 5,05" and the mode indicator "-- INSERT --".

```
1 unless false
2   #code
3 end
4
5 if !false
6   #code
7 end
```

~  
~  
~  
~

<rb (ruby) [+] 7,05  
-- INSERT --

```
1 puts "1 == 1" if 1 == 1
2
3 puts "1 != 2" unless 1 == 2
4
5
```

~  
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~  
~  
~

<rb (ruby) [+] 5,01  
-- INSERT --

```
1 case
2 when a == b
3   puts "a == b"
4 when a == c
5   puts "a == c"
6 else
7   puts a
8 end
```

~  
~  
~

<rb (ruby) [+] 8,06  
-- INSERT --

# Hashes

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 hash = Hash.new
2 hash["foo"] = "bar"
3 hash["bar"] = "foo"
4
5 puts hash["foo"]
```

The code uses syntax highlighting where "Hash" is red, strings are green, and numbers are white. The status bar at the bottom shows the file name "<9.rb (ruby) [+] 5,18" and the mode indicator "-- INSERT --". To the left of the editor window, there is a vertical column of blue tilde (~) characters.

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 hash = {  
2   "foo" => "bar",  
3   "bar" => "foo"  
4 }  
5  
6 puts hash["foo"]
```

The code uses syntax highlighting where "hash", "puts", and the string literals ("foo", "bar") are in white, while the keys and values in the hash are in green. The status bar at the bottom shows the file name "<9.rb (ruby) [+] 6,18" and the mode indicator "-- INSERT --". On the left side of the editor, there are several blue tilde (~) characters.

# Symbols

A screenshot of the VIM text editor on a Mac OS X system. The window title is "09.rb + (~) - VIM". The buffer contains the following Ruby code:

```
1 a = :symbol
2
3 puts a # => symbol |
```

The code consists of three lines. The first line defines a variable "a" with the value ":symbol". The second line is blank. The third line prints the value of "a" using the "puts" method, with a comment "# => symbol" and a cursor positioned at the end of the line. To the left of the code, there are approximately 15 blue tilde (~) characters, which are typically used as placeholder text in VIM. The status bar at the bottom shows the file name "<9.rb (ruby) [+] 3,20" and the mode indicator "-- INSERT --".

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The code in the buffer is:

```
1 hash = {  
2   :foo => "bar",  
3   :bar => "foo"  
4 }  
5  
6 puts hash[:foo] # => "bar"
```

~~~~~

<9.rb (ruby) [+] 6,28

-- INSERT --

Modificadores de acesso

A screenshot of the VIM text editor interface. The title bar at the top center reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 class A
2   public # padrão
3   def metodo
4     puts "public"
5   end
6 end
7
8 A.new.metodo
```

The word "public" in line 2 is highlighted in orange, indicating it is a keyword. The cursor is positioned at the end of line 8, after the method call. The status bar at the bottom shows the file name "<rb (ruby) [+] 8,16" and the mode indicator "-- INSERT --". On the far left of the status bar, there are three blue tilde (~) symbols.

```
1 class A
2   private
3   def metodo
4     puts "private"
5   end
6 end
7
8 A.new.metodo
9 #private method 'metodo'
10 #called |
```

~

<rb (ruby) [+] 10,10
-- INSERT --

```
1 class A
2   private
3   def metodo
4     puts "private"
5   end
6 end
7 class B < A
8   def metodo2
9     metodo
10  end
11 end |
```

<rb (ruby) [+] 11,05

-- INSERT --

```
1 class A
2   private
3   def metodo
4     puts "private"
5   end
6 end
7 class B < A
8   def metodo2
9     self.metodo # Error
10  end
11 end
```

<rb (ruby) [+] 11,06

-- INSERT --

```
1 class A
2   protected
3     def metodo
4       puts "protected"
5     end
6   end
7   class B < A
8     def metodo2
9       metodo
10    end
11  end
```

<rb (ruby) [+] 11,06

-- INSERT --

```
1 class A
2   protected
3   def metodo
4     puts "protected"
5   end
6 end
7 class B < A
8   def metodo2
9     self.metodo
10  end
11 end
```

<rb (ruby) [+] 11,06

-- INSERT --

Exceções

```
1 def metodo(param)
2   raise if param == false
3 end
4
5 metodo(false)
```

~
~
~
~
~
~
~

<rb (ruby) [+] 5,15

-- INSERT --

```
1 def metodo(param)
2     raise if param == false
3 end
4
5 begin
6     metodo(false)
7 rescue
8     puts "Capturada"
9 ensure
10    puts "Sempre executado"
11 end |
```

<rb (ruby) [+] 11,05

-- INSERT --

```
1 class MyException < Exception
2
3 end
4
5 raise MyException
```

~
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~
~
~
~

<rb (ruby)

5,19

-- INSERT --

em ruby, quase tudo é um

Objeto

```
1 "string".class # => String
2 1.class          # => Fixnum
3 1.0.class        # => Float
4 [].class         # => Array
5 {}.class         # => Hash
6 nil.class        # => NilClass
7
```

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~

<rb (ruby) [+] 7,01
-- INSERT --

A screenshot of the VIM text editor on a Mac OS X system. The window title is "08.rb + (~) - VIM". The code in the buffer is:

```
1 5.times { puts "Ruby!" }
2
3 # Ruby!
4 # Ruby!
5 # Ruby!
6 # Ruby!
7 # Ruby!|
```

The line numbers 1 through 7 are in white, the block brace is in yellow, and the "# Ruby!" comments are in brown. The cursor is at the end of the 7th line. The status bar at the bottom shows the file name "<rb (ruby) [+] 7,08" and the mode indicator "-- INSERT --".

A screenshot of a Mac OS X desktop environment showing a Vim window running on a terminal. The Vim window title is "09.rb + (~) - VIM". The buffer contains the following Ruby code:

```
1 2 + 5
2 2.+ (5) |
```

The terminal below shows the output of the code execution:

```
<rb (ruby) [+] 2,08
-- INSERT --
```

**classes também são
Objetos**

e o nome de uma classe é apenas uma constante

rb object_model13....ject_model) - VIM1

```
1 String.class      # => Class
2 Fixnum.class     # => Class
3 Numeric.class    # => Class
4 Array.class      # => Class
5 Range.class      # => Class
6 NilClass.class   # => Class
7 TrueClass.class  # => Class
8 Exception.class  # => Class
9 Object.class     # => Class
10 Class.class      # => Class
11
```

~

<t_model13.rb[] [ruby-1.8.7-p352] 1,11/11 All

-- INSERT --

Objeto

variáveis de instância

+
link para classe

classe

métodos de instância
+
link para superclasse

**Classes
são abertas**

```
1 class A
2   def metodo1
3     puts "metodo1"
4   end
5 end
6
7 class A
8   def metodo2
9     puts "metodo2"
10  end
11 end
12
13 a = A.new
14 a.metodo1
15 a.metodo2
```

mesmo nome

**a classe "A" é reaberta
e o "metodo2" adicionado**

```
1 value = MoneyUtil.to_money(10)
2
3 class Fixnum
4   def to_money
5     # conversão para dinheiro
6   end
7 end
8
9 value = 10.to_money
```

<mplos/object_model4.rb[] [ruby-1.8.7-p352] 20, 9/9 All
-- INSERT --

A screenshot of a VIM window displaying a Ruby script named `object_model5.rb`. The code defines a class `Fixnum` with a custom addition operator `+(num)` that subtracts the number instead of adding it. A test line at the bottom prints the result of `10 + 2`, which is expected to be `8`.

```
object_model5.rb (~...mpósito/exemplos) – VIM
1 class Fixnum
2   def +(num)
3     self - num
4   end
5 end
6
7 puts 10 + 2 # => 8|
```

The status bar at the bottom shows the file name `object_model5.rb`, the ruby version `[ruby-1.8.7-p352]`, the current line `19,7/7 All`, and the mode `-- INSERT --`.

Testes

Principais opções

Test::Unit built-in
RSpec gem install rspec

Test::Unit

A screenshot of the VIM text editor on a Mac OS X system. The title bar reads "09.rb + (~) - VIM". The code in the buffer is:

```
1 require "test/unit"
2 class A < Test::Unit::TestCase
3   def test_true
4     assert(true)
5   end
6
7   def test_um_igual_um
8     assert_equal(1, 1)
9   end
10 end |
```

~

~

<9 .rb (ruby) [+] 10,06

-- INSERT --

brianstorti at ~

\$ ruby teste.rb

Run options:

Running tests:

..

Finished tests in 0.000614s, 3257.3290 tests/s, 3
257.3290 assertions/s.

2 tests, 2 assertions, 0 failures, 0 errors, 0 skips

brianstorti at ~

\$

A screenshot of a VIM window titled "09.rb + (~) - VIM". The buffer contains the following code:

```
1 assert_equal
2 assert
3 assert_nil
4 assert_raise
5 assert_match
6 assert_not_same
7
8
```

The first eight lines are visible in the main editor area, while the subsequent lines are shown as blue squiggle marks (~) in the scroll bar, indicating they are out of view. The status bar at the bottom shows "<9 .rb (ruby) [+] 7,01" and "--- INSERT ---".

RSpec

A screenshot of the VIM text editor on a Mac OS X system. The window title is "09.rb + (~) - VIM". The code in the buffer is:

```
1 describe "Test" do
2   it "should be true" do
3     true.should be_true
4   end
5
6   it "should be equal" do
7     1.should == 1
8   end
9 end |
```

~
~
~

<9.rb (ruby) [+] 9,06
--- INSERT ---

~ — zsh

brianstorti at ~

\$ rspec spec.rb

..

Finished in 0.00258 seconds

2 examples, 0 failures

brianstorti at ~

\$

A screenshot of the VIM text editor interface. The title bar at the top reads "09.rb + (~) - VIM". The main window displays the following Ruby code:

```
1 describe "Test" do
2   it "should be true" do
3     false.should be_true
4   end
5 end |
```

The code uses color-coded syntax highlighting: "describe" and "it" are orange, the string "should be true" is green, and the variable "false" is blue. Below the code, there are several blue tilde (~) characters, likely representing a cursor or selection. The status bar at the bottom shows the file name "<9.rb (ruby) [+] 5,06" and the mode indicator "-- INSERT --".



~ — zsh

brianstorti at ~
\$ rspec spec.rb

F

Failures:

1) Test should be true

Failure/Error: false.should be_true

expected false to be true

./spec.rb:3:in `block (2 levels) in <top (required)>'

Finished in 0.00248 seconds

1 example, 1 failure

Failed examples:

Obrigado!

Perguntas?

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