Problem 1

In[1]:=
```
Solve[Tan[x] == 2 * x, x]
```

Solve: This system cannot be solved with the methods available to Solve.

Out[1]=
```
Solve[Tan[x] == 2 x, x]
```

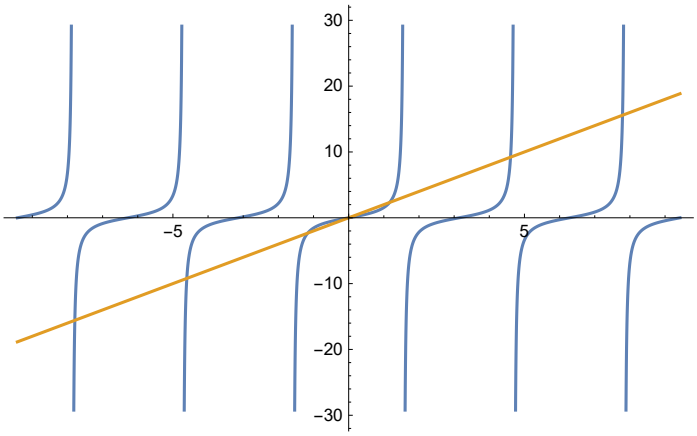
In[2]:=
```
NSolve[Tan[x] == 2 * x, x]
```

NSolve: This system cannot be solved with the methods available to NSolve.

Out[2]=
```
NSolve[Tan[x] == 2 x, x]
```

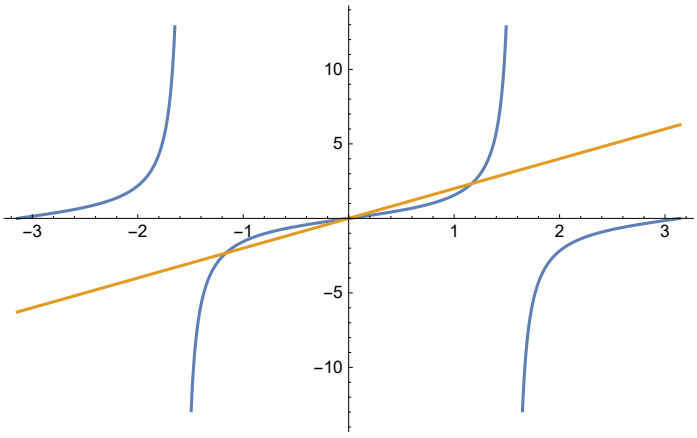
In[3]:=
```
Plot[{Tan[x], 2 * x}, {x, -3 Pi, 3 Pi}]
```

Out[3]=



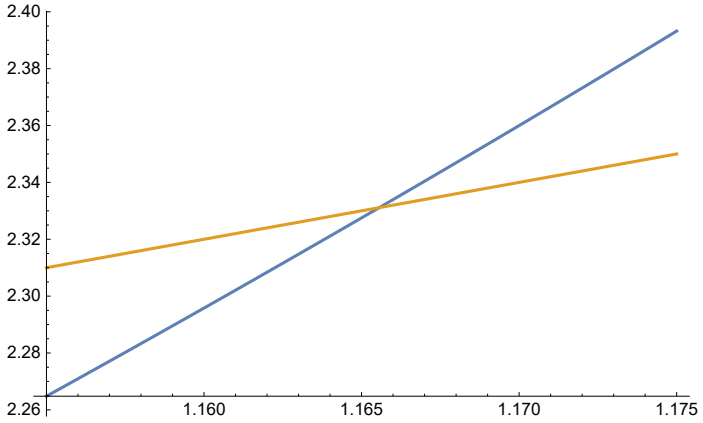
In[4]:=
```
Plot[{Tan[x], 2 * x}, {x, -Pi, Pi}]
```

Out[4]=



In[6]:=
```
Plot[{Tan[x], 2 * x}, {x, 1.165 - .01, 1.165 + .01}]
```

Out[6]=



In[10]:=
```
FindRoot[Tan[x] == 2 x, {x, 1}]
```

Out[10]=
```
{x → 1.16556}
```

In[9]:=
```
? FindRoot
```

Out[9]=

Symbol

FindRoot[f, {x, x_0}] searches for a numerical root of f, starting from the point $x = x_0$.

FindRoot[*lhs* == *rhs*, {x, x_0}] searches for a numerical solution to the equation *lhs* == *rhs*.

FindRoot[{f_1, f_2, …}, {{x, x_0}, {y, y_0}, …}] searches for a simultaneous numerical root of all the f_i.

FindRoot[{eqn_1, eqn_2, …}, {{x, x_0}, {y, y_0}, …}]

searches for a numerical solution to the simultaneous equations eqn_i.

Documentation Local » | Web »

Options › AccuracyGoal → Automatic … (11 total)

Attributes {HoldAll, Protected}

Full Name System`FindRoot

In[13]:=
```
NSolve[{Tan[x] == 2 * x, x > 1, x < 8}, x]
```

Out[13]=
```
{{x → 1.16556}, {x → 4.60422}, {x → 7.78988}}
```

In[14]:=
```
Solve[Tan[x] == 0, x]
```

Out[14]=
```
{{x → ConditionalExpression[π c₁, c₁ ∈ ℤ]}}
```

In[15]:=
```
Solve[{Tan[x] == 0, x > 1, x < 20}, x]
```

Out[15]=
```
{{x → π}, {x → 2 π}, {x → 3 π}, {x → 4 π}, {x → 5 π}, {x → 6 π}}
```

In[17]:=
```
? Plot
```

Out[17]=

Symbol

Plot[f, {x, x_{min}, x_{max}}] generates a plot of f as a function of x from x_{min} to x_{max}.

Plot[{f_1, f_2, …}, {x, x_{min}, x_{max}}] plots several functions f_i.

Plot[{…, w[f_i], …}, …] plots f_i with features defined by the symbolic wrapper w.

Plot[…, {x} ∈ reg] takes the variable x to be in the geometric region reg.

Documentation Local » | Web »

Options › AlignmentPoint → Center … (63 total)

Attributes {HoldAll, Protected, ReadProtected}

Full Name System`Plot

In[47]:=
```
Plot[1 / (9 - x), {x, 0, 9}, Filling → Bottom, PlotRange → {0, 10}]
```

Out[47]=