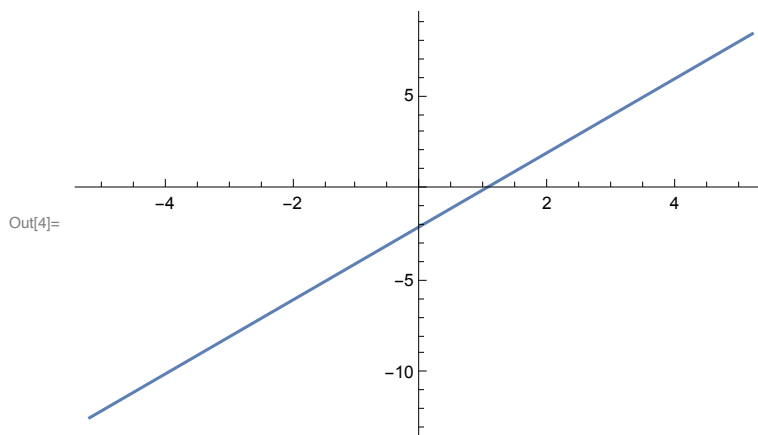


# Hands-On Start to Mathematica

## Entering Calculations

### Free-Form Input

In[4]:= `Plot[2 * x - 2, {x, -5.2, 5.2}]`



integral of  $\cos(2x)$



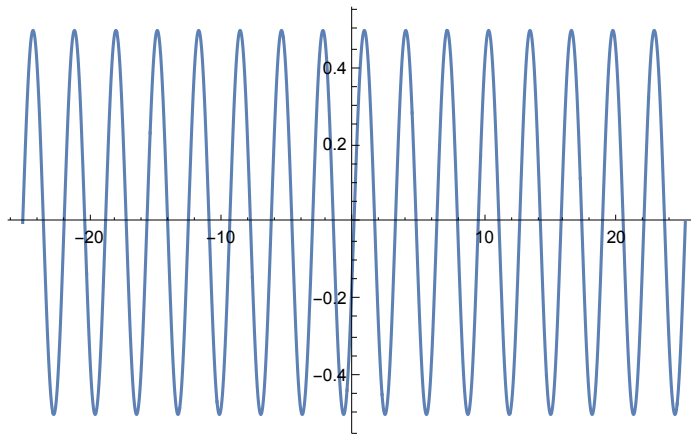
`Integrate[Cos[2 * x], x]`

Out[6]=  $\frac{1}{2} \sin[2x]$

In[7]:= `Simplify` $\left[\frac{1}{2} \sin[2x]\right]$

Out[7]=  $\cos[x] \sin[x]$

In[8]:= `Plot[Cos[x] Sin[x], {x, -8 \pi, 8 \pi}]`



In[11]:=



number of turkeys in Turkey



Turkey COUNTRY [ livestock population + turkeys ]

Out[11]=  $3.18 \times 10^6$ 

In[12]:=



gdp of turkey / number of turkeys in Turkey



Turkey COUNTRY [ GDP + nominal ] / Turkey COUNTRY [ livestock population + turkeys ]

Out[12]= \$239 216. per year

## Wolfram Language

1. Capital Letters to start all function names.
2. Function arguments are enclosed by square brackets [ ].
3. Lists, ranges, and domains are enclosed by curly braces { }.
4. Shift + Enter to run the calculations.

In[13]:= `Integrate[x^2, {x, -10, 10}]`Out[13]= 
$$\frac{2000}{3}$$



```
In[31]:= {{y → -4}}  
         f[x_] := x ^ 2  
         f[2]
```

```
Out[31]= {{y → -4}}
```

```
Out[33]= 4
```