In [1]:

```
import pandas as pd



def styled_formula_table(df):
    """Return styled display table for formulas"""

    mytable = df.style.set_properties(subset=['Formula', 'Key'], **{'width':
        {'selector': 'th.col_heading', 'props': 'text-align: left'},
        {'selector': 'td', 'props': 'text-align: left'}])

    return (mytable)




if __name__ == '__main__':

    # Latex string in csv needs to be enclosed a single $ to enable left ali
    df=  pd.read_csv(filepath_or_buffer='formulas.csv')
    display(styled_formula_table(df))
```

	Category	Sub-category	Description	Key	Formula	Year	On formula sheet	C
0	Indices	Index Rules	Multiplying terms with same base	nan	$a^m \times a^n = a^{m+n}$	9	False	r
1	Indices	Index Rules	Dividing terms with same base	nan	$a^m \div a^n = \frac{a^m}{a^n} = a^{m-n}$	9	False	r
2	Indices	Index Rules	Power of a power	nan	$(a^m)^n = a^{m \times n}$	9	False	r
3	Indices	Index Rules	Powers of products	nan	$(ab)^n = a^n b^n$	9	False	r
4	Indices	Index Rules	Powers of quotients	nan	$\left(\frac{a}{b}\right)^n = \frac{a^n}{b^n}$	9	False	r
5	Indices	Index Rules	Power of zero	nan	$a^0 = 1$	9	False	r
6	Indices	Index Rules	Negative powers	nan	$a^{-n} = \frac{1}{a^n}$	9	False	r
7	Indices	Index Rules	Negative powers of quotients	nan	$\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n$	9	False	r
8	Indices	Index Rules	Fractional powers	nan	$a^{\frac{m}{n}} = \sqrt[n]{a^m}$	9	False	r
9	Differentiation	nan	nan	$y = f(x)^n$	$\frac{dy}{dx} = nf'(x)[f(x)]^{n-1}$	12	True	r
10	Integration	nan	nan	$y = f(x)^n$	$\int f'(x)[f(x)]^n dx = \frac{1}{n+1}[f(x)]^{n+1} + c$ where $n \neq 1$	12	True	V h V -
11	Differentiation	nan	nan	$y = sinf(x)$	$\frac{dx}{dy} = f'(x)cosf(x)$	12	True	r
12	Integration	nan	nan	$y = sinf(x)$	$\int f'(x)cosf(x)dx = sinf(x) + c$	12	True	r

In [2]:
```
#To do : Concatenate the 2 comment fields  (if 2 comments exist need to add
```

```
# Change the width of the Function to differeentiate column
# Can I get a newline before ...when n does not equal -1

df_calculus = df[['Category', 'Key', 'Formula', 'Comment']][df["Category"].i

df_calculus = df_calculus.pivot(columns='Category', index = 'Key')

df_calculus.columns = df_calculus.columns.get_level_values(0) +' ' + df_calc

df_calculus['Comment'] = df_calculus['Comment Differentiation'] + df_calculu

df_calculus = df_calculus.reset_index()
df_calculus =  df_calculus.drop(labels = ['Comment Differentiation', 'Commer
df_calculus = df_calculus.rename(columns={
    "Key": "Function to differentiate",
    "Formula Differentiation": "Derivative",
    "Formula Integration":"Equivalent integral"})


mytable = df_calculus.style.set_properties(subset=['Function to differentiat
    {'selector': 'th.col_heading', 'props': 'text-align: left'},
    {'selector': 'td', 'props': 'text-align: left'}])


display(mytable)

# display(df_calculus)

# df_calculus[('Comment', 'Differentiation')]
```

	Function to differentiate	Derivative	Equivalent integral	Comment
0	$y = f(x)^n$	$\frac{dy}{dx} = nf'(x)[f(x)]^{n-1}$	$\int f'(x)[f(x)]^n dx = \frac{1}{n+1}[f(x)]^{n+1} + c$ where $n \neq 1$	What happens when n is -1?
1	$y = sinf(x)$	$\frac{dx}{dy} = f'(x)cosf(x)$	$\int f'(x)cosf(x)dx = sinf(x) + c$	

In [21]:
```
# Differentiation
from IPython.display import Latex
test = r"$ \dfrac{dx}{dy} = f'(x)cos f(x$"
display (Latex(test))
```

$$\frac{dx}{dy} = f'(x)cosf(x$$

In [22]:
```
# Integrals
test = r"$ {\Large\int} f'(x)cosf(x)dx = sin f(x) + c$"
display (Latex(test))
```

$$\int f'(x) cos f(x) dx = sin f(x) + c$$

In [3]:
```
! pwd
```

```
/home/charl/Onedrive/Documents_Charl/Computer_Technical/Programming_GitHub/AustraliaSchoolMaths
```