Quiz 07, MAT128, Spring 2024

Problem #1a

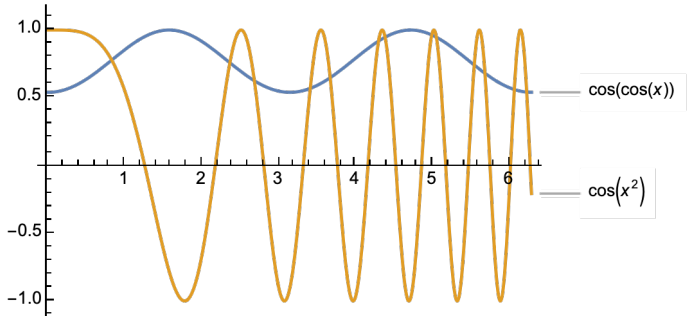
In[3339]:=
```
D[Sin[Cos[x]], x]
```

Out[3339]=
```
-Cos[Cos[x]] Sin[x]
```

Whoops! Cos[Cos[x]] is not equal to Cos[x^2]:

In[3341]:=
```
Plot[{Cos[Cos[x]], Cos[x^2]}, {x, 0, 2 Pi}, PlotLabels → Automatic]
```

Out[3341]=



Problem #1b

In[3344]:=
```
Together[D[((2 x - 3) / x)^2, x]]
```

Out[3344]=
$$\frac{6\ (-3+2\ x)}{x^3}$$

Problem #1c

In[3345]:=
```
Together[D[Exp[x^3], x]]
```

Out[3345]=
$$3\ e^{x^3}\ x^2$$

Problem #2

In[3371]:=
```
Clear[c, x]
c[x_] := Exp[x^3]
c'[x]
L[x_] := c[0] + c'[0] (x - 0)
L[x]

Plot[{c[x], L[x]}, {x, -1, 1}, PlotRange → {0, 2}, PlotLabels → Automatic]
```

Out[3373]= $3\, e^{x^3}\, x^2$

Out[3375]= 1

Out[3376]=