

1. If a and b are even integers, then so is $a + b$.

Solution:

Let a and b be even integers. Then there exist integers j and k such that $a = 2j$ and $b = 2k$. But then

$$a + b = 2j + 2k = 2(j + k). \quad (1)$$

Since $j + k \in \mathbb{Z}$, $a + b$ is even.

2. Plot $\sin(x)$ and $\cos(x)$ for $-\pi \leq x \leq \pi$ on the same graph. Make sure the graph is labeled nicely.

Solution:

```
octave:1> x=[-pi:0.01:pi];  
octave:2> plot(x,sin(x),x,cos(x));  
octave:3> set(gca, "fontsize", 14 )  
octave:4> xlabel("x");ylabel("y");title("sin and cos");  
octave:5> legend("sin","cos");
```

