

**Chapter 37: 3.** If  $a$  and  $b$  are even integers, then so is  $a + b$ .

*Proof.* 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.  $\square$

**Worksheet: 9.** 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");
```

