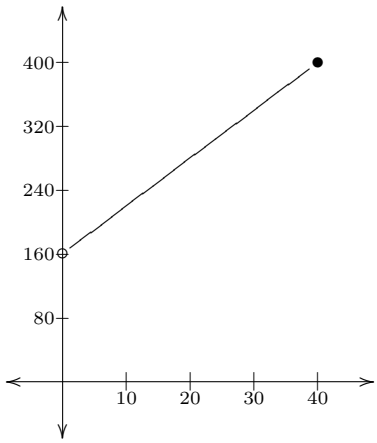
2.88.A Here is the graph of the cost function:

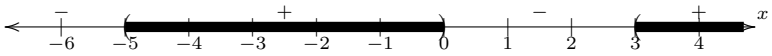


3.3.41 First,

$$\frac{x^2+5x}{x-3}=0$$

exactly when $x^2+5x=0$, in other words when x is 0 or -5. Next, the expression is undefined exactly when $x-3=0$, in other words, when x is 3.

When $x<-5$ (say when $x=-6$), the statement is *false*. When $-5<x<0$ (say when $x=-1$), the statement is *true*. When $0<x<3$ (say when $x=1$), the statement is *false*. Finally, when $x>3$ (say when $x=4$), the statement is *true*.



Therefore,

$$-5<x<0 \text{ or } x>3.$$

In other words, x belongs to the set

$$(-5,0)\cup(3,\infty).$$

3.3.81

a When $S(x)=\begin{cases}5+0.63x & \text{for } x\le 50,\\ 5+0.63(50)+0.45x & \text{for } x>50.\end{cases}$

c This function s is **continuous**, because the two pieces join together.

It's **not smooth**, however, because the pieces join in a corner.