Chapter 4

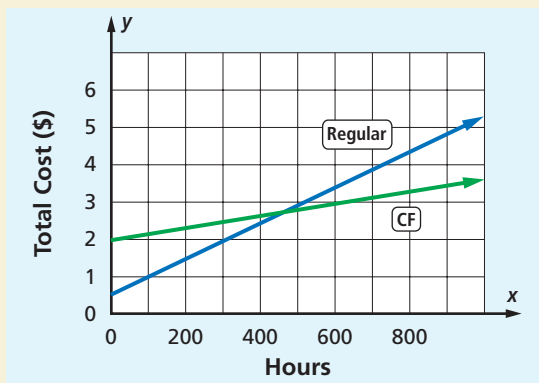# More Linear Equations and Inequalities

Contents

A lightbulb manufacturer produces two kinds of bulbs: regular bulbs and new compact fluorescent (CF) bulbs. The CF bulbs are more energy efficient than regular bulbs, since they produce the same amount of light but use less electricity. However, CF bulbs cost more than regular bulbs. Would the money a person saves in electricity make up for the higher initial cost of the CF bulb? This question and other related questions can be answered by using tables, by drawing graphs, and by solving linear equations and inequalities.

$$a + bx > c + dx$$

$$a + bx < c + dx$$

$$a + bx = c + dx$$

Hours (h)	CF Bulb Cost	Regular Bulb Cost
0	$1.99	$0.52
100	$2.15	$1.00
200	$2.31	$1.48
300	$2.47	$1.96
400	$2.63	$2.44
500	$2.79	$2.92
600	$2.95	$3.40
700	$3.11	$3.88
800	$3.27	$4.36
900	$3.43	$4.84
1,000	$3.59	$5.32

Equations and Inequalities		
	CF Bulb Cost	Regular Bulb Cost
When is the regular bulb cheaper?	$1.99 + 0.16h >$	$0.52 + 0.48h$
When is the CF bulb cheaper?	$1.99 + 0.16h <$	$0.52 + 0.48h$
When are the costs the same?	$1.99 + 0.16h =$	$0.52 + 0.48h$

In this chapter, you will use all these ways to solve linear sentences and study how they are related to each other.