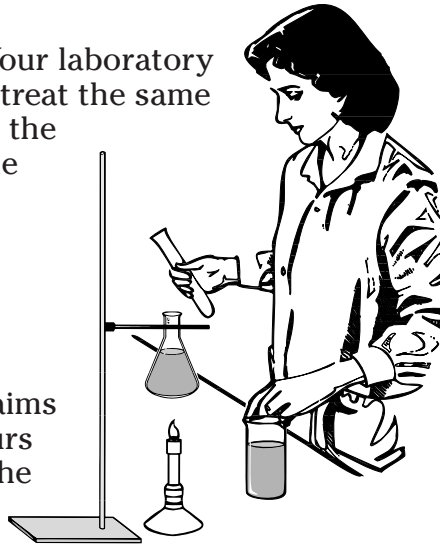
NAME _____ DATE _____

School-to-Career Activity

(Use with Lesson 12-1)

Pharmaceutical Laboratory Technician



Suppose you are a pharmaceutical laboratory technician. Your laboratory team is testing two new drugs developed independently to treat the same condition. The company that developed Drug A claims that the concentration of the drug in the bloodstream is given by the formula

$$C_A = \frac{3t + 1}{t^2 + 5},$$

where t is the number of hours since the drug was injected into muscle tissue. The company that developed Drug B claims that the concentration of the drug in the bloodstream t hours since the drug was injected into muscle tissue is given by the formula

$$C_B = \frac{2t + 5}{2t^2 + 7}.$$

To compare the two drugs, complete the following table of values, rounding to the nearest hundredth. On the same set of axes, plot the information for time (horizontal axis) and concentration (vertical axis) for both drugs. What can you conclude about the performance of the two drugs?

Time in hours	Drug A Concentration	Drug B Concentration
0.5	0.48	0.80
1.0	0.67	0.78
1.5	0.76	0.70
2.0	0.78	0.60
2.5	0.76	0.51
3.0	0.71	0.44
3.5	0.67	0.38
4.0	0.62	0.33
4.5	0.57	0.29
5.0	0.53	0.26
5.5	0.50	0.24
6.0	0.46	0.22
6.5	0.43	0.20
7.0	0.41	0.18
7.5	0.38	0.17
8.0	0.36	0.16
8.5	0.34	0.15
9.0	0.33	0.14
9.5	0.31	0.13
10.0	0.30	0.12

From the table and graph, it appears that Drug B takes effect more quickly, but Drug A lasts longer.