Name Date

Enrichment and Extension

4.2

Airplanes

The cabin (interior) of an airplane is partitioned into 3 distinct sections, or classes. The cost of a seat in each of the classes is different and the amenities in each class vary.

|  |  |  |
| --- | --- | --- |
| Seats | Width of Seat | Pitch of Seat |
| First class | 51 cm | *p* cm |
| Business class | *x* cm | 140 cm |
| Economy class | 43 cm | 81 cm |

1. The width of a seat in business class is the average of the widths of the seats   
in first class and economy class. Find the width of a seat in business class.

2. The cabin has a minimum width requirement so that each passenger on the plane has comfortable accommodations.

a. The width of four business class seats and an aisle *y* must be at least 304.75 centimeters. Write an inequality that represents this situation.

b.What is the width of the aisle?

c.An airplane row contains 8 business class seats and 2 aisles. What is the minimum width *w* of the cabin?

3. The pitch of an airplane seat refers to the distance between the backs of   
two consecutive seats.

a. Thirty-eight less than the pitch *p* between first class seats is at least   
as big as 2 times the pitch between economy class seats. Write an inequality that models the pitch between seats in first class.

b. What is the pitch between seats in first class?

4. Which class contains the greatest number of seats? the least number of seats? Explain your reasoning.