Problem of the Week
Problem B and Solution
Game On ...

Problem

Many sports are divided into a fixed number of "playing periods" or "parts", with each part having a fixed length of playing time. The following chart outlines how many parts are in one game for various sports, the playing time for one part, and the total playing time for one game without any stoppages.

a) Complete the chart using the information provided.

Sport	Number of "parts" in one game	Playing time for one "part"	Total playing time for one game
NFL football	4 quarters	15 minutes	60 minutes
NBA basketball	4 quarters	12 minutes	48 minutes
Hockey	3 periods	20 minutes	60 minutes
Soccer	2 halves	45 minutes	90 minutes
Lacrosse	4 quarters	15 minutes	60 minutes

b) A NFL football game between Buffalo and Detroit started at 1:00 p.m. The game took 2 hours and 12 minutes longer than the playing time with no stoppages. At what time did the game end?

c) A basketball game between Toronto and Boston started at 7:00 p.m. and ended at 9:15 p.m. How much of this time was during stoppages in play?

Solution

a) See the completed chart in the problem statement above.

b) Since the game took 2 hours and 12 minutes longer than the time with no stoppages, there were 2 hours and 12 minutes of stoppages. The time from start to finish for the football game was 60 minutes of playing time plus 2 hours and 12 minutes of stoppages, or 3 hours and 12 minutes. Thus, the game finished at 4:12 p.m.

c) From start to finish, the time for the basketball game was 2 hours and 15 minutes, or $2 \times 60 + 15 = 135$ minutes. This includes playing time and stoppage time. Thus, the stoppage time is 135 minutes minus playing time, or $135 - 48 = 87$ minutes.