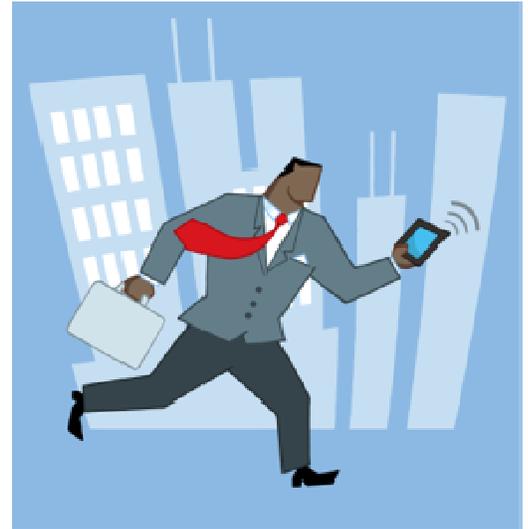


Name _____

Date _____

Calculating the Payoff of a Game of Chance - Step-by-Step Lesson

In a city 20% of families have 2 cell phones, 40% of families have 5 cell phones, 30% of families have 7 cell phones and 10% of families have 1 cell phone. What is the expected number of cell phones in a family?

**Explanation:**

We list the information in the following table:

Number of cell phones	2	5	7	1
Probability	.20	.40	.30	.10

$$\text{Expected Value} = x_1p(x_1) + x_2p(x_2) + x_3p(x_3) + x_4p(x_4)$$

$$E = 2(.20) + 5(.40) + 7(.30) + 1(.10)$$

$$= 0.4 + 2 + 2.1 + 0.1$$

$$= 4.6$$

So, there are 4.6 cell phones in a family on average.

