

Canadian Population by Age (1996)

Interval	Midpoint	Number	Percent
under 15	8	5,901,280	20.4%
15–24	20	3,857,170	13.4%
25–44	35	9,360,620	32.5%
45–64	55	6,199,855	21.5%
65–74	70	2,061,935	7.1%
75+	82	1,465,910	5.1%
Total		28,846,770	100%

Experiment: “pick a Canadian”

Random Variable: $X(x)$ age of x

Mean:

$$E(X) = 8 \times .204 + 20 \times .134 + 35 \times .325 + 55 \times .215 \\ + 70 \times .071 + 82 \times .051$$

$$\mu_X = E(X) = \mathbf{36.7}$$

Variance and Standard Deviation:

$$E(X^2) = 8^2 \times .204 + 20^2 \times .134 + 35^2 \times .325 + 55^2 \times .215 \\ + 70^2 \times .071 + 82^2 \times .051$$

$$= 1806$$

$$\sigma_X^2 = E(X^2) - E(X)^2 = \mathbf{459}$$

$$\sigma_X = \sqrt{459} = \mathbf{21.4}$$