

# Relationship Between Beer Tax Revenues and Population

Population, X (millions)	Beer Tax Revenue, Y (millions)
12.4	146
6.1	85
2.4	21
4.3	47
9.5	115
7.6	90

$$\bar{X} = \underline{\hspace{2cm}} \quad \bar{Y} = \underline{\hspace{2cm}}$$

$X_i - \bar{X}$	$(X_i - \bar{X})^2$	$Y_i - \bar{Y}$
12.4 - <u>        </u> = <u>        </u>	<u>        </u>	146 - <u>        </u> = <u>        </u>
6.1 - <u>        </u> = <u>        </u>	<u>        </u>	85 - <u>        </u> = <u>        </u>
2.4 - <u>        </u> = <u>        </u>	<u>        </u>	21 - <u>        </u> = <u>        </u>
4.3 - <u>        </u> = <u>        </u>	<u>        </u>	47 - <u>        </u> = <u>        </u>
9.5 - <u>        </u> = <u>        </u>	<u>        </u>	115 - <u>        </u> = <u>        </u>
7.6 - <u>        </u> = <u>        </u>	<u>        </u>	90 - <u>        </u> = <u>        </u>

$$(X_i - \bar{X})(Y_i - \bar{Y})$$

<u>        </u>	x	<u>        </u>	=	<u>        </u>
<u>        </u>	x	<u>        </u>	=	<u>        </u>
<u>        </u>	x	<u>        </u>	=	<u>        </u>
<u>        </u>	x	<u>        </u>	=	<u>        </u>
<u>        </u>	x	<u>        </u>	=	<u>        </u>
<u>        </u>	x	<u>        </u>	=	<u>        </u>

$$\sum (X_i - \bar{X})(Y_i - \bar{Y}) = \underline{\hspace{2cm}}$$

$$\sum (X_i - \bar{X})^2 = \underline{\hspace{2cm}}$$

$$b = \frac{\sum (X_i - \bar{X})(Y_i - \bar{Y})}{\sum (X_i - \bar{X})^2} = \underline{\hspace{2cm}}$$

$$a = \bar{Y} - b\bar{X} = \underline{\hspace{2cm}}$$

$$\hat{Y} = \underline{\hspace{1cm}} + \underline{\hspace{1cm}}X$$