

Step 1

	High temp in °C x	Iced tea orders y	$x - \bar{x}$	$y - \bar{y}$	$(x - \bar{x})^2$	$(y - \bar{y})^2$	$(x - \bar{x})(y - \bar{y})$
22nd (Mon.)	29	77	-0.4	2	0.2	4.0	-0.8
23rd (Tues.)	28	62	-1.4	-13	2.0	169.0	19.2
24th (Wed.)	34	93	4.6	18	21.2	324.0	82.8
25th (Thurs.)	31	84	1.6	9	2.6	81.0	14.4
26th (Fri.)	25	59	-4.4	-16	19.4	256.0	70.4
Sum	147	375	0	0	45.4	834.0	195.0
Average	29.4 ↓ \bar{x}	75 ↓ \bar{y}			↓ s_{xx}	↓ s_{yy}	↓ s_{xy}

Step 2

	High temp in °C x	Actual iced tea orders y	Predicted iced tea order $\hat{y} = ax + b$	Residuals(e) $y - \hat{y}$	Squared residuals $(y - \hat{y})^2$
22nd (Mon.)	29	77	$a \times 29 + b$	$77 - (a \times 29 + b)$	$[77 - (a \times 29 + b)]^2$
23rd (Tues.)	28	62	$a \times 28 + b$	$62 - (a \times 28 + b)$	$[62 - (a \times 28 + b)]^2$
24th (Wed.)	34	93	$a \times 34 + b$	$93 - (a \times 34 + b)$	$[93 - (a \times 34 + b)]^2$
25th (Thurs.)	31	84	$a \times 31 + b$	$84 - (a \times 31 + b)$	$[84 - (a \times 31 + b)]^2$
26th (Fri.)	25	59	$a \times 25 + b$	$59 - (a \times 25 + b)$	$[59 - (a \times 25 + b)]^2$
Sum	147	375	$147a + 5b$	$375 - (147a + 5b)$	S_e
Average	29.4 ↓ \bar{x}	75 ↓ \bar{y}	$29.4a + b$ $= \bar{x}a + b$	$75 - (29.4a + b)$ $= \bar{y} - (\bar{x}a + b)$	$= \frac{S_e}{5}$

$$S_e = [77 - (a \times 29 + b)]^2 + \dots + [59 - (a \times 25 + b)]^2$$

Step 3

$$\frac{dy}{dx} = n(ax + b)^{n-1} \times a$$

Diff a

$$\frac{dS_e}{da} = 2 [77 - (29a + b)] \times (-29) + \dots + 2 [59 - (25a + b)] \times (-25) = 0 \quad (1)$$

$$\frac{dS_e}{da} = 2 [77 - (29a + b)] \times (-1) + \dots + 2 [59 - (25a + b)] \times (-1) = 0 \quad (2)$$

Step 6

$$a = \frac{S_{xy}}{S_{xx}} = \frac{185.0}{45.4} = 4.1$$

$$b = \bar{y} - \bar{x}a = 75 - 29.4 \times 4.1 = -45.54$$

$$y = 4.1x - 45.54 \quad \times$$