Price (x)	Normalization	$(Price-\mu)^2$	Standardization	Max Absolute Scaler
110	$\frac{110-100}{150-100}=0.2$	$(110-116.11)^2=37.33$	$\frac{110-116.11}{14.68}=-0.42$	$\frac{110}{150}=0.73$
105	$\frac{105-100}{150-100}=0.1$	$(105-116.11)^2=123.43$	$\frac{105-116.11}{14.68}=-0.76$	$\frac{105}{150}=0.70$
115	$\frac{115-100}{150-100}=0.3$	$(115-116.11)^2=1.23$	$\frac{115-116.11}{14.68}=-0.08$	$\frac{115}{150}=0.77$
120	$\frac{120-100}{150-100}=0.4$	$(120-116.11)^2=15.13$	$\frac{120-116.11}{14.68}=0.26$	$\frac{120}{150}=0.80$
110	$\frac{110-100}{150-100}=0.2$	$(110-116.11)^2=37.33$	$\frac{110-116.11}{14.68}=-0.42$	$\frac{110}{150}=0.73$
130	$\frac{130-100}{150-100}=0.6$	$(130-116.11)^2=192.93$	$\frac{130-116.11}{14.68}=0.95$	$\frac{130}{150}=0.87$
150	$\frac{150-100}{150-100}=1$	$(150-116.11)^2=1148.53$	$\frac{150-116.11}{14.68}=2.30$	$\frac{150}{150}=1$
100	$\frac{100-100}{150-100}=0$	$(100-116.11)^2=259.53$	$\frac{100-116.11}{14.68}=-1.10$	$\frac{100}{150}=0.67$
105	$\frac{105-100}{150-100}=0.1$	$(105-116.11)^2=123.43$	$\frac{105-116.11}{14.68}=-0.76$	$\frac{105}{150}=0.7$
		$\Sigma=1938.87$		

Standardization

$$x_{new}=\frac{x_i-x_{mean}}{\text{standard deviation}}$$

$$\sigma=\sqrt{\frac{\Sigma(x_i-\mu)^2}{N}}$$

$$\mu=x_{mean}=\frac{110+105+115+120+110+130+150+100+105}{9}$$

$$=116.11$$

Normalization

$$x_{new}=\frac{x_i-\min(x)}{\max(x)-\min(x)}$$

Let, x = Price

$\min(x)=100$

$\max(x)=150$

$N=9$

Max Absolute Scaler

$$x_{scaled}=\frac{x}{\max(x)}$$

Price (x)	Log transform	Robust scaling
110	$\ln(110) = 4.70$	$\frac{110-110}{120-105} = 0$
105	$\ln(105) = 4.65$	$\frac{105-110}{120-105} = -0.33$
115	$\ln(115) = 4.74$	$\frac{115-110}{120-105} = 0.33$
120	$\ln(120) = 4.7$	$\frac{120-110}{120-105} = 0.67$
110	$\ln(110) = 4.70$	$\frac{110-110}{120-105} = 0$
130	$\ln(130) = 4.87$	$\frac{130-110}{120-105} = 1.33$
150	$\ln(150) = 5.01$	$\frac{150-110}{120-105} = 2.67$
100	$\ln(100) = 4.61$	$\frac{100-110}{120-105} = -0.67$
105	$\ln(105) = 4.65$	$\frac{105-110}{120-105} = -0.33$

median

100 105 105 110 (110) 115 120 130 150

25th percentile — 75th percentile

$9 \times \frac{75}{100} = 6.75 \approx 7$

$9 \times \frac{25}{100} = 2.25 \approx 3$

Robust scaling

$$\frac{x_i - x_{median}}{IQR}$$

$\{75^{th}\text{percentile} - 25^{th}\text{percentile}\}$