

Practice Problem Solutions

1. a) $\bar{X}_{new} = \bar{X}_{original} + \text{constant}$ $81 = 66 + 15$ b) $\bar{X}_{new} = 16.5 = 66 \div 4$
 $S_{new} = S_{original}$ $7 = 7$ $S_{new} = 1.75 = 7 \div 4$

2. a) $\bar{X}_{new} = \bar{X}_{original} \times \text{constant}$ $925 \text{ ft} = 185 \times 5$ b) $\bar{X}_{new} = 173 = 185 - 12$
 $S_{new} = S_{original} \times \text{constant}$ $61.55 \text{ ft} = 12.31 \times 5$ $S_{new} = 12.31 = 12.31$

3)

Student	Math Score	z score
Jessie	82	$z = \frac{X - \bar{X}}{S} = \frac{82 - 74}{5.45} = 1.468$
Lucinda	85	$\frac{85 - 74}{5.45} = 2.018$
Marquette	79	$\frac{79 - 74}{5.45} = 0.917$
Frank	66	$\frac{66 - 74}{5.45} = -1.468$
Jerome	75	$\frac{75 - 74}{5.45} = 0.183$
Misty	72	$\frac{72 - 74}{5.45} = -.367$

4)

Participant	Response Time	z score
A	61.5 ms	$z = \frac{X - \bar{X}}{S} = \frac{61.5 - 45.3}{13.1} = 1.237$ ms
B	28.4 ms	$\frac{28.4 - 45.3}{13.1} = -1.29$ ms
C	32.8 ms	$\frac{32.8 - 45.3}{13.1} = -0.954$ ms
D	47.7 ms	$\frac{47.7 - 45.3}{13.1} = 0.183$ ms

5).

Player 1	Player 2	Player 3	Player 4	Player 5	Player 6	Player 7	Player 8
145	122	139	156	119	133	141	110
$\frac{145 - 128}{12}$	$\frac{122 - 128}{12}$	$\frac{139 - 128}{12}$	$\frac{156 - 128}{12}$	$\frac{119 - 128}{12}$	$\frac{133 - 128}{12}$	$\frac{141 - 128}{12}$	$\frac{110 - 128}{12}$
$z = 1.417$	$z = -.5$	$z = .917$	$z = 2.333$	-0.75	.417	1.083	-1.5