Q1.

a) $\sum_{i=1}^{5} x_i$ b) $\sum_{i=3}^{6} x_i$ c) $\sum_{i=1}^{3} (x_i + 2)$

d) $\sum_{i=1}^{5} (x_i - 10)$ e) $\sum_{i=1}^{3} (x_i - 3)^2$ f) $\sum_{i=1}^{3} (x_i - 15)^2 f_i$

Q2.

a) $x_2 + x_3 + x_4 + x_5 + x_6 + x_7$

b) $x_3^2 + x_4^2 + x_5^2 + x_6^2$

c) $(x_1 - a)^2 f_1 + (x_2 - a)^2 f_2 + (x_3 - a)^2 f_3 + (x_4 - a)^2 f_4$

Q3.

a) $1 + 2 + 3 + 4 = 10$

b) $3 + 4 + 6 + 8 = 21$

c) $2 + 5 + 3 + 2 = 12$

d) $3.2 + 4.5 + 6.3 + 8.2 = 6 + 20 + 18 + 16 = 60$

e) $1.3 + 2.4 + 3.6 + 4.8 = 3 + 8 + 18 + 32 = 61$

f) $9.2 + 16.5 + 36.3 + 64.2 = 18 + 80 + 108 + 128 = 334$

g) $(3-10)^2 \cdot 2 + (4-10)^2 \cdot 5 + (6-10)^2 \cdot 3 + (8-10)^2 \cdot 2$

$(-7)^2 \cdot 2 + (-6)^2 \cdot 5 + (-4)^2 \cdot 3 + (-2)^2 \cdot 2$

$49 \cdot 2 + 36 \cdot 5 + 16 \cdot 3 + 4 \cdot 2$

$98 + 180 + 48 + 8$

334

h) $\left(\frac{3.2}{1}\right) + \left(\frac{4.5}{2}\right) + \left(\frac{6.3}{3}\right) + \left(\frac{8.2}{4}\right)$

$6 + 10 + 6 + 4 = 26$

4 a) $\frac{1+2+8+10+12+16+21+30}{8} = \frac{100}{8} = 12,5$

b) $\frac{5+6+6+10+11+11+20}{7} = \frac{5+6,2+10+11,2+20}{7}$

$= \frac{69}{7} = 9,857$

c) $\frac{3,4+7,8+9,23+12,15}{4} = \frac{32,58}{4} = 8,145$

05 X: 3; 4; 3,5; 5; 3,5; 4; 5; 5,5; 4; 5

Peso $= \sum_{i=1}^{10} x_i = 42,5$ kg ← Sim, vai aprovado!

Peso Médio $= \bar{X} = \frac{\sum x_i}{n} = \frac{42,5}{10} = 4,25$ kg

06 Média Geométrica

$\bar{X}_g = \sqrt[5]{1.2.4.7.16} = \sqrt[5]{896} = 3,894$

$\bar{Y}_g = \sqrt[5]{81.26.10.3.1} = \sqrt[5]{63.180} = 9,122$

07 Média Harmônica

a) $\bar{X}_h = \frac{4}{\frac{1}{5}+\frac{1}{10}+\frac{1}{15}+\frac{1}{20}} = \frac{4}{\frac{12+6+4+3}{60}} = \frac{4}{\frac{25}{60}}$

5, 10, 15, 20	2
5, 5, 15, 10	2
5, 5, 15, 5	3
5, 5, 5, 5	4
1 1 1 1	60

$= \frac{4}{1} \cdot \frac{60}{25} = \frac{240}{25} = 9,6$

b) $\bar{Y}_h = \frac{3}{\frac{1}{2}+\frac{1}{7}+\frac{1}{4}} = \frac{3}{\frac{14+4+7}{28}} = \frac{3}{\frac{25}{28}} = \frac{3}{1} \cdot \frac{28}{25} = \frac{84}{25}$

2, 7, 4	2
1, 7, 2	2
1, 1, 1	7
1 1 1	28

$= 3,36$

x_1 x_2 x_3

X: 13,0 ; 13,2 ; 13,5

08 $\bar{x} = \frac{13 + 13,2 + 13,5}{3} = \frac{39,2}{3} = 13,233$ R$/kg$

09 x^*: 130 ; 132 ; 135

130 − 1 kg	132 − 1 kg	135 − 1 kg
1 − x_1 kg	1 − x_2	1 − x_3
$x_1 = \frac{1}{130}$ kg	$x_2 = \frac{1}{132}$ kg	$x_3 = \frac{1}{135}$ kg

$$\bar{x} = \frac{x_1 + x_2 + x_3}{3} = \frac{\frac{1}{130} + \frac{1}{132} + \frac{1}{135}}{3}$$

$\bar{x} = 0,0075585$ kg/h

10 $\bar{x}_g = \frac{3}{\frac{1}{130} + \frac{1}{132} + \frac{1}{135}} = 132,3015$ kg

11 $\bar{x} = \frac{2.1 + 3.4 + 4.3 + 5.2}{1 + 4 + 3 + 2} = \frac{2 + 12 + 12 + 10}{10} = \frac{36}{10}$

$\bar{x} = 3,6$

12 $\bar{x}_g = \sqrt[10]{2^1 . 3^4 . 4^3 . 5^2} = \sqrt[10]{2.81.64.25} = \sqrt[10]{259200}$

$= 3,4783$

13 $\bar{x}_h = \frac{1 + 4 + 3 + 2}{\frac{1}{2} + \frac{4}{3} + \frac{3}{4} + \frac{2}{5}} = \frac{10}{\frac{30 + 80 + 45 + 24}{60}}$

$= \frac{10}{\frac{179}{60}} = \frac{10}{1} \cdot \frac{60}{179} = \frac{600}{179} = 3,352$

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PRODUTO	LUCRO $/UNID.	MES AGOSTO UNIDADES
A	200	20
B	300	30
C	500	20
D	1000	10
E	5000	5

$$\bar{X} = \frac{200.20 + 300.30 + 500.20 + 1000.10 + 5000.5}{20+30+20+10+5}$$

$$\bar{X} = \frac{4000 + 9000 + 10000 + 10000 + 25000}{85}$$

$$= \frac{58000}{85} = 682{,}35 \ \$/\text{UNID.}$$

15 $\bar{X} = \frac{0.30 + 1.5 + 2.3 + 3.1 + 4.1}{40} = \frac{5+6+3+4}{40}$

$\bar{X} = \frac{18}{40} = 0{,}45$ ACIDENTES/DIA

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$$\bar{X} = \frac{100.30 + 300.52 + 500.28 + 700.7 + 900\,3}{120}$$

$$= \frac{3000 + 15600 + 14000 + 4900 + 2700}{120}$$

$$= \frac{40200}{120} = 335 \ \$/\text{USA}$$