

Maths Quest Standard 2 Year 12 Chapter 9 corrections

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In the Maths Quest textbook (Roland et al, 2018) there are some errors introduced by adding or subtracting values from normal distribution tables already rounded to 4 decimal places. The result is not necessarily correct to 4 decimal places. This can be remedied by use of the CASIO fx-100 AU PLUS 2nd edition calculator which gives more accurate calculations.

The corrections are for Chapter 9

- 9.4.3 Worked Example 12(f)
- Exercise 9.4 Q9(d), Q9(e), Q14(f), Q15(c), Q15(d), Q18(d)
- Exercise 9.5 Review Q19(f), Q20(d)

For the CASIO fx-100AU PLUS 2nd edition calculator in Statistics Mode, Press MODE 3 1 AC to put it into Statistics Mode and exit the Editor Screen.

Then press SHIFT 1 5 2 z_1) = to get $Q(z_1) := P(0 < z < z_1)$ for some positive z -score z_1 .

9.4.3 Worked Example 12(f)

$$P(1 < z < 2) = Q(2) - Q(1) = 0.13591 \approx \mathbf{0.136} \text{ not } 0.135.$$

Exercise 9.4

$$\mathbf{Q9(d)} \quad 100P\left(\frac{90-120}{10} \leq z \leq \frac{110-120}{10}\right) = 100Q(3) - 100Q(1) = 15.731\% \approx \mathbf{15.73\%} \text{ not } 15.85\%.$$

$$\mathbf{Q9(e)} \quad 100P\left(\frac{110-120}{10} \leq z \leq \frac{150-120}{10}\right) = 100Q(1) + 100Q(3) = 83.999\% \approx \mathbf{84.00\%} \text{ not } 83.85\%.$$

$$\mathbf{Q14(f)} \quad P(3 < x < 6) = P\left(\frac{3-5}{1} < z < \frac{6-5}{1}\right) = Q(2) + Q(1) = 0.81859 \approx \mathbf{0.8186} \text{ not } 0.8185.$$

$$\mathbf{Q15(c)} \quad P\left(\frac{160-165}{14} \leq z \leq \frac{170-165}{14}\right) = 2Q\left(\frac{5}{14}\right) = 0.27902 \approx \mathbf{0.2790} \text{ not } 0.2812.$$

$$\mathbf{Q15(d)} \quad P(180 < x < 184) = P\left(\frac{180-165}{14} < z < \frac{184-165}{14}\right) = Q\left(\frac{19}{14}\right) - Q\left(\frac{15}{14}\right) = 0.05462 \approx \mathbf{0.0546} \text{ not } 0.0554.$$

$$\mathbf{Q18(d)} \quad P(140 \leq x \leq 170) = P\left(\frac{140-160}{15} \leq z \leq \frac{170-160}{15}\right) = Q\left(\frac{4}{3}\right) + Q\left(\frac{2}{3}\right) = \mathbf{0.6563} \text{ not } 0.7011.$$

Exercise 9.5 Review

Q19(f) $P(23 < x < 26) = P\left(\frac{23-25}{3} < z < \frac{26-25}{3}\right) = Q\left(\frac{2}{3}\right) + Q\left(\frac{1}{3}\right) = 0.37807$
 ≈ 0.3781 not 0.3779.

Q20(d) $P\left(\frac{220-215}{8} < z < \frac{230-215}{8}\right) = Q\left(\frac{15}{8}\right) - Q\left(\frac{5}{8}\right) = 0.23559 \approx 0.2356$ not 0.2342.

Reference

Roland, L., et al., Jacaranda Maths Quest 12 Mathematics Standard 2, 5th ed., Jacaranda, 2019