Paper A Non Calculator Solutions

Qu	Marking Guidance	Illustration
1.	• Correct substation • Begins to compute • Final answer	• $f(-3) = 2(-3)^2 - 6$ • $18 - 6$ • 12
2.	• Correctly expands brackets • Correct solutions	• $6x^3 - 4x^2 + 2x + 3x^2 - 2x + 1$ • $6x^3 - x^2 + 1$
3.	• Addition of fractions • Correct multiplications	• $2\frac{5}{7}\left(\frac{14}{9}\right)$ • $\frac{38}{9} or\ 4\frac{2}{9}$
4.	• Finds angle OBD • Finds angle FBE • Finds angle FBD	• $\angle OBD = 62^0$ • $\angle FBE = 73^0$ • $\angle FBD = 135^0$
5.	• Correct gradient • Begins to find gradient • Final solution	• $m = 9$ • $y - 2 = 9(x - 4)$ • $y = 9x - 34$
	• Correct y intercept • Correct x intercept	• $(0, -34)$ • $\left(\frac{43}{9}, 0\right)$
6.	• Correct use of cosine rule • Begins to simplify • Final solution	• $\cos P = \frac{6^2+8^2-4^2}{2\times6\times8}$ • $\cos P = \frac{84}{96}$ • $\cos P = \frac{7}{8}$ as required
7.	• Correct answer	• $Median = 49.5$
	• Final answer	• $Q_1 = 16$ and $Q_3 = 72$
	• Final answer	• $SIQR = 28$
	• Statement comparing the averages • Statement on consistency	• On average there was older patients in the second surgery than the first. • The ages of patients were more consistent in the second surgery than the first.
8.	• Begins to use converse of Pythagoras • Continues to use converse of Pythagoras • Final statement	• $57^2 + 76^2 = 9025$ • $95^2 = 9025$ • Since $57^2 + 76^2 = 95^2$ this set square has a perfect right angle.
9.	• Finds equivalent fractions with equal denom. • Writes and single fractions • Single fraction in it's simplest form.	• $\frac{6(x-3)}{(x-3)^2} + \frac{7}{(x-3)^2}$ • $\frac{6(x-3)+7}{(x-3)^2}$ • $\frac{6x-11}{(x-3)^2}$
10.	• Finds linear scale factor • Finds full side on larger triangle • Finds value of x	• $LSF = \frac{5}{3}$ • $\frac{5}{3} \times 8 = \frac{40}{3}$ • $x = \frac{16}{3}$
11.	• Correct value of a • Correct value of b	• $a = -4$ • $b = 2$
12	• Correctly substitutes into quadratics form. • Begins to simplify • Fully simplifies • States values of a, b and c	• $x = \frac{-8\pm\sqrt{8^2-4\times2\times(-3)}}{2\times2}$ • $x = \frac{-8\pm\sqrt{88}}{4}$ • $x = -2 \pm \frac{1}{2}\sqrt{22}$ • $a = -2, b = \frac{1}{2},, c = 22$

13	• Correct 4^{th} root of 81 • Final answer	• 3^5 • 243
	• Simplifies numerator • Final answer with positive indices	• $\frac{3^{-2}x^{-6}}{16x^2}$ • $\frac{1}{144x^3}$
	• Simplifies all surds • Final solution simplified	• $4\sqrt{6}+5\sqrt{6}-3\sqrt{6}$ • $6\sqrt{6}$
14.	• Correct fraction • Begins to find arc length • Final arc length.	• $\frac{135}{360}$ • $\frac{3}{8}\times 3.14\times 16$ • $18.84cm$