National 5 Practice Paper A

Answers

Paper 1

1. $1\frac{13}{20}$

2. $(x+5)(x-3)$

3. $y = 10x + 5$

4. $y = (x+4)^2 - 23$, T.P.$(-4,-23)$

5. $R = \sqrt[3]{\frac{P+5}{b}}$

6a. $\begin{pmatrix} -10 \\ 4 \end{pmatrix}$ b. $2\sqrt{29}$

7. $b = 3$

8. $(3,-1)$

9. $b^2 - 4ac = -19 < 0$ Therefore there are no real roots

10. $y = 3x - 18$

11a. $(2,-9)$ b. $C(0,-5)$ c. $B(5,0)$

12. P(rectangle) = P(square)
$2l + 2(x+3) = 4(2x+2)$
$l + x + 3 = 2(2x+2)$
$l = 4x + 4 - x - 3$
$l = 3x + 1$ as required

13a. $\frac{6-2x}{x(x+2)}$ b. $8\sqrt{2}$

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Paper 2

1. 581 000

2a. $\bar{x}$ = 60, s = 11.03 (2dp)

2b. On average the marks of both groups are the same since 60 = 60

However, the marks from Group A are much more consistent since 11.03 < 29.8.

3. $2x^3 + 11x^2 + 11x - 4$

4. 8.5 km

5. 466.73 centimetres

6a. 63 000 cm^3 b. 8.4 cm (using the answer to part a)

7. 237.76 cm^2

8a. $2a^{\frac{3}{2}} + a^3$ b. x = 1.1 or -2.1

9a. x = 128.66°, 308.66° b. Proof using $\tan x = \dfrac{\sin x}{\cos x}$

10a. Area = length × breadth $= (30 + x)(10 + x) = 300 + 30x + 10x + x^2 = x^2 + 40x + 300$.

10b. length = 35 cm, breadth = 15 cm