

**NATIONAL 5 MATHEMATICS
MODEL PAPER 2**
Paper 1

1. $\frac{4}{11}$
2. $2(m+3)(m-3)$
3. -4
4. $\frac{-7}{5}$
5. $4\sqrt{7}$
6. $y = (x+5)^2 - 8$
7. (a) $24x + 6y = 60$
(b) $20x + 10y = 20$
(c) 25
8. 138°
9. $g = \frac{3}{4}h + 11$
10. $\frac{2}{3}a + \frac{1}{2}b$
11. $\frac{\sin B}{4} = \frac{\sin 150^\circ}{10}$
 $\sin B = \frac{4\sin 150^\circ}{10} = \frac{4\sin 30^\circ}{10} = \frac{4 \times \frac{1}{2}}{10} = \frac{2}{10} = \frac{1}{5}$
12. b
13. $\frac{5p}{4}$
14. $\frac{\sin^2 A}{1-\sin^2 A} = \frac{\sin^2 A}{\cos^2 A} = \tan^2 A$

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Paper 2

1. 3.24×10^{15}
2. $x^3 - 2x^2 + x$
3. 2.6 metres
4. $r = \sqrt{\frac{p-q}{2}}$
5. $-2.8, 1.3$
6. (a) median = 58.5, interquartile range = 22
(b) In December the marks (on average) are better and less spread out
7. 47.7 kilometres
8. No, as $7754.6 \text{ cm}^2 \neq 8040 \text{ cm}^2$
9. 7
10. No, as $11700 (90^2 + 60^2) \neq 12100 (110^2)$
11. 36.4 cm^3
12. (a) $a = -5, b = 1$
(b) P(0, 26), Q(10, 26)
13. (a) (90, 1)
(b) $48.6^\circ, 131.4^\circ$
14. 12 seconds