WORKSHEET

Name: ..... Class: .....

Date: .....

MARK ____ / 22

Answer all questions. Show all your working — marks are awarded for method as well as the final answer.

1 Δ for $x^2 - 6x + 9 = 0$, and the nature of roots. *(classify)* **(2)**

2 Δ for $x^2 + 2x + 5 = 0$, and the nature of roots. *(classify)* **(2)**

3 Δ for $2x^2 - 7x + 3 = 0$, and the nature. *(classify)* **(2)**

4 Are the roots of $x^2 - 4x + 4 = 0$ rational? *(rational?)* **(2)**

5 Rational or irrational: $x^2 - 2x - 2 = 0$? *(rational?)* **(2)**

6 For which k does $x^2 + kx + 4 = 0$ have equal roots? *(equal, find k)* **(3)**

7 For which k does $x^2 - 6x + k = 0$ have equal roots? *(equal, find k)* **(2)**

8 For which k does $x^2 + 2x + k = 0$ have two real roots? *(real, find k)* **(3)**

9 For which k does $x^2 - 2x + k = 0$ have no real roots? *(non-real, find k)* **(3)**

10 Δ for $3x^2 - 5x + 1 = 0$. *(compute)* **(1)**

TOTAL: 22 marks

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