

Test 6

Friday Jan.25th 2019

Maths 10

Revision Second degree & Parametric equations

Name: _____

1) Solving second degree equation

$$6x^2 - x = 2$$

2) Second degree parametric equations

i) Find the value(s) of m such that the equation $3x^2 - mx + 12 = 0$ has *only one* solution.

ii) Find the value(s) of p such that the equation $px^2 - 6x + p = 0$ has *only one* solution.

iii) Given that the equation $9x^2 - 6sx + 4s = 0$ has *two* solutions,

– What are the possible values for s ?

– Write down these two solutions in terms of the parameter s .

3) Factorisation $\boxed{ax^2 + bx + c = a(x - x_1)(x - x_2)}$

iv) Factorise $6x^2 - x - 2$ Help : there is some connection with question (1) above.

iv) Factorise $9x^2 - 6sx + 4s$ Help : there is some connection with question (2iii) above.

4) For what values of m does the equation

$$mx^2 - 8x + m = 0 \text{ have two solutions?}$$

(You may need the following rule : $\text{If } m^2 < A^2 \text{ then } -A < m < A$)

5) i) For what values of λ does the equation

$$(\lambda - 1)x^2 + (\lambda + 1)x + (\lambda - 1) = 0 \text{ have an unique (a double) solution?}$$

ii) For each of these values of λ , what is the *unique* solution x of the equation?

Bonus (About the sum of the solutions of a second degree equation : $s = -\frac{b}{a}$)

What is the *sum* of the two solutions of 2(iii)?