

(C1-2.6a) Name:

### Homework Questions 6 – Sketching Graphs and using the Discriminant

Calculate the value of the Discriminant and hence state the number of real roots

1.  $x^2 + 7x + 3 = 0$

2.  $x^2 + x + 7 = 0$

3.  $3x^2 - 2x - 1 = 0$

37  
2 real

4.  $x^2 - 20x + 100 = 0$

-27  
No solution

5.  $4x^2 + 5x - 2 = 0$

16  
2 real

6.  $x^2 = -11x - 3$

0  
1 repeated

7. For what values of P will the roots of  $px^2 - 2x + 5 = 0$  be real?

$$b^2 - 4ac \geq 0 \quad p \leq 0.2$$

8. Find the range of values for q for which the equation  $2x^2 - 8x - q = 0$  has 2 real roots?

$$b^2 - 4ac > 0 \quad q > -8$$

9. For what values of y will the roots of  $yx^2 - 2x - 5 = 0$  be equal?

$$b^2 - 4ac = 0 \quad y = -0.2$$

10. Sketch the graph of  $y = x^2 - 2x - 8$  after first finding all the points of intersection and the value of the Discriminant

$$b^2 - 4ac = 36 \quad 2 \text{ real roots} \quad (4,0) (-2,0) (0,-8) \text{ u shape}$$

