Quadratic Functions & The Discriminant: Part 1

1)

Find the range of values of k such that the equation $kx^2 - x - 1 = 0$ has no real roots. **4**

2) Here are two statements about the roots of the equation $x^2 + x + 1 = 0$:

(1) the roots are equal;

(2) the roots are real.

Which of the following is true?

A Neither statement is correct.

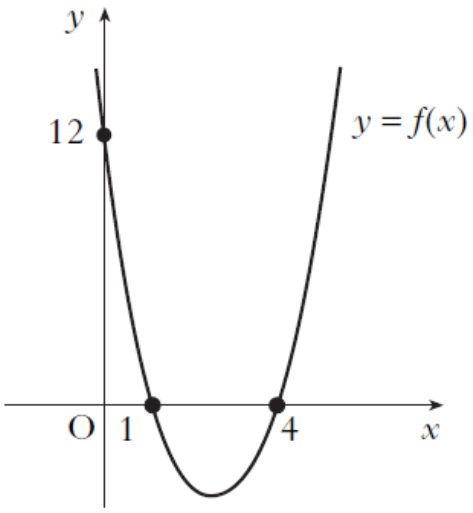
B Only statement (1) is correct.

C Only statement (2) is correct.

D Both statements are correct.

3) The diagram shows part of the graph of a quadratic function $y = f(x)$.

The graph has an equation of the form $y = k(x - a)(x - b)$.



What is the equation of the graph?

4) $2x^2 + 4x + 7$ is expressed in the form $2(x + p)^2 + q$.

What is the value of q?

5) A function f is given by $f(x) = 2x^2 - x - 9$.

Which of the following describes the nature of the roots of $f(x) = 0$?

A No real roots

B Equal roots

C Real distinct roots

D Rational distinct roots

6) For what values of x is $6 + x - x^2 < 0$?

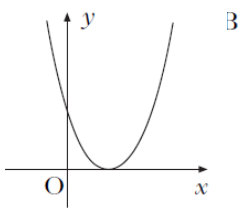
7) The roots of the equation $kx^2 - 3x + 2 = 0$ are equal.

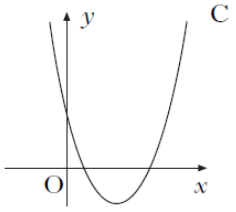
What is the value of k?

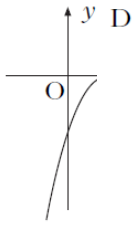
8)

Which of the following diagrams shows a parabola with equation $y = ax^2 + bx + c$, where

- $a > 0$
- $b^2 - 4ac > 0$?

A 

B 

C 

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