PARABOLAS AND DISCRIMINANTS

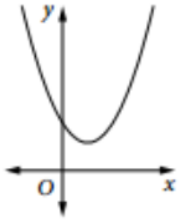
2 Calculate the discriminant for each of the following equations and hence state whether the equations have two, one or no real roots.

(a) $x^2 + 6x + 2 = 0$ **(b)** $2x^2 + 3x + 4 = 0$ **(c)** $4x^2 - 12x + 9 = 0$

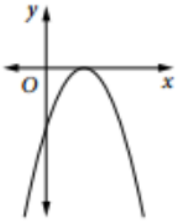
(d) $-3x^2 + 2x - 1 = 0$ **(e)** $2x^2 = 3x + 7$

3 For which curve can you say that $a > 0$ and $\Delta < 0$?

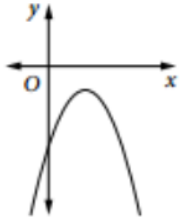
A



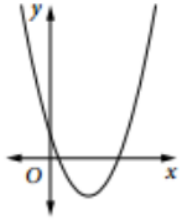
B



C



D



4 Without sketching the graphs of each function, determine whether or not they cross the x-axis.

(a) $y = x^2 - 5x + 2$ **(b)** $y = -4x^2 + 2x - 1$ **(c)** $y = x^2 - 6x + 9$

PARABOLAS AND DISCRIMINANTS

5 Calculate the discriminant for each of the following equations. Use this information to decide on the best solution method, then solve each equation.

(a) $x^2 + 2x - 15 = 0$ **(b)** $x^2 - 9x - 5 = 0$ **(c)** $12x^2 = 25x - 12$

(m) $4x^2 = 9x - 4$ **(n)** $9x^2 + 24x + 16 = 0$ **(o)** $3x^2 + 4x = 5$