

4. Find the constant, c , if the curve $y = x^2 + c$ is tangent to the line $y = x$.

5. Find the values of the constants $a, b,$ and c if the curve $y = ax^2 + bx + c$ is to pass through the point $(1, 2)$ and is tangent to the line $y = x$ at the origin.

6. Find the values of the constants $a, b,$ and c so that the curves $y = x^2 + ax + b$ and $y = cx - x^2$ will be tangent to each other at the point $(1, 0)$.