> **YOU & MATHS** **GCF of polynomials in a** Find three polynomials $A(a)$, $B(a)$, and $C(a)$ such that the following are satisfied: the greatest common factor of $A(a)$ and $B(a)$ is a^2; the greatest common factor of $B(a)$ and $C(a)$ is 5; $A(a)$ and $C(a)$ have no common factors.

$A(a)$ must be a multiple of a^2, so for example $A(a) = a^2(a-1)$.
Then $B(a)$ must be a multiple of a^2 but not of $a-1$. Also $B(a)$ must be a multiple of 5, so for example $B(a)$ could be $5a^2$.
$C(a)$ must also be a multiple of 5, and not a multiple of a^2 or of $a-1$, so $C(a)$ could be, for example,

$$C(a) = 5 \cdot (a+3).$$

In conclusion, for example, we could choose:

$$A(a) = a^2(a-1) = a^3 - a^2,$$
$$B(a) = 5a^2,$$
$$C(a) = 5(a+3) = 5a + 15.$$