**1.** $g(x) = 3x^3 - 20x^2 + (k+17)x + k$

where $k$ is a constant.

Given that $(x - 3)$ is a factor of $g(x)$, find the value of $k$.

**(3)**

$g(3) = 0$

$3(3)^3 - 20(3)^2 + (k+17)3 + k = 0$

$81 - 180 + 3k + 51 + k = 0$

$4k = 48$

$k = 12$