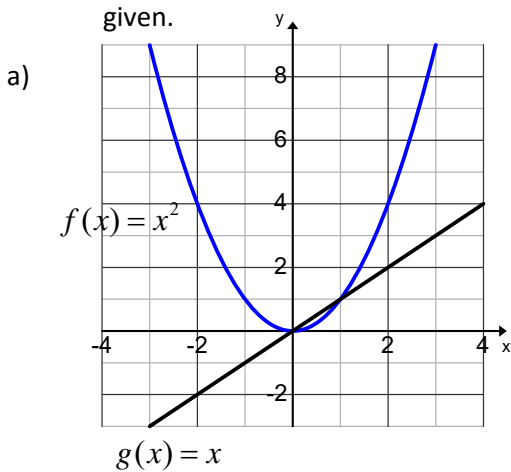
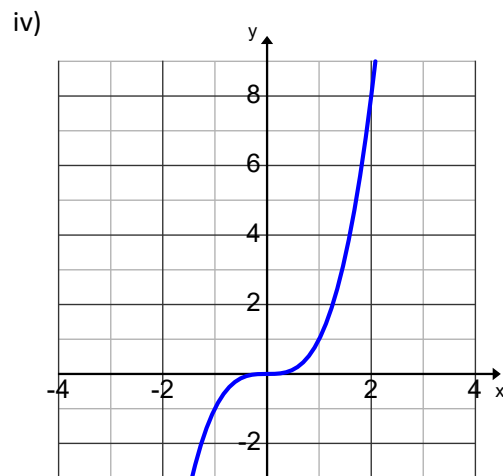
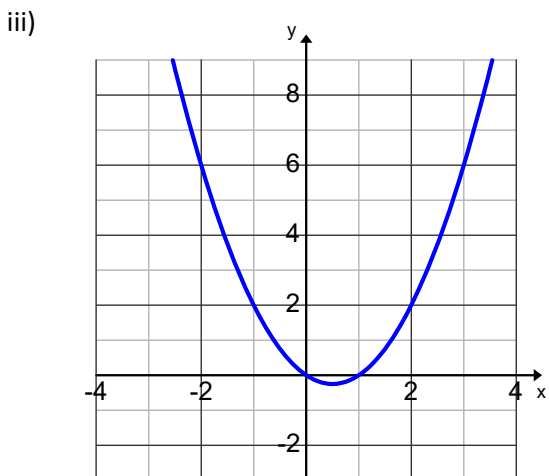
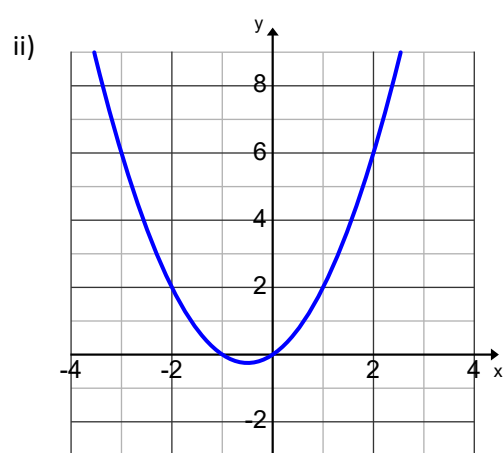
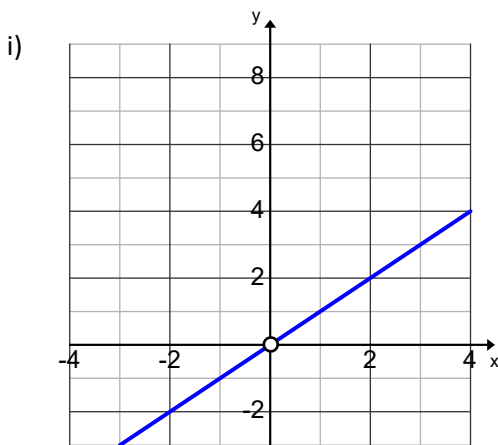


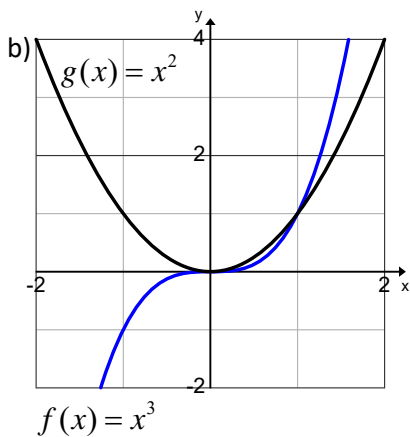
Operations on Functions Review:

1. Given $y = f(x)$ and $y = g(x)$, for each pair of graphs determine which graphs below represent $y = f(x) + g(x)$, $y = f(x) - g(x)$, $y = f(x)g(x)$ and $y = f(x)/g(x)$. Explain your reasoning and write a simplified function for each sum, difference, product & quotient $f(x)$ and $g(x)$ of in terms of the functions given.

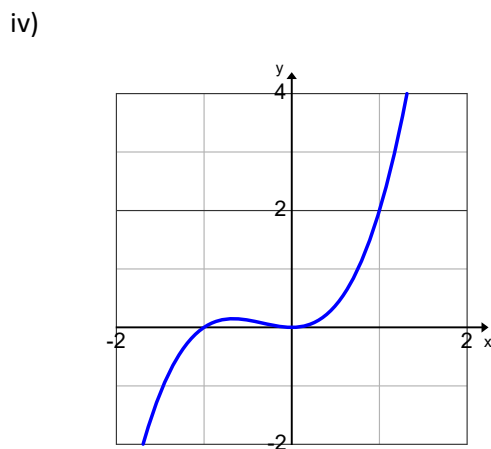
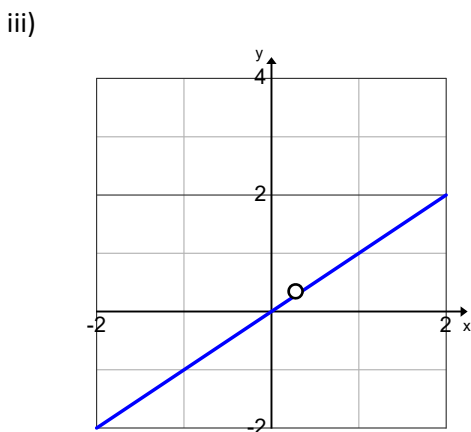
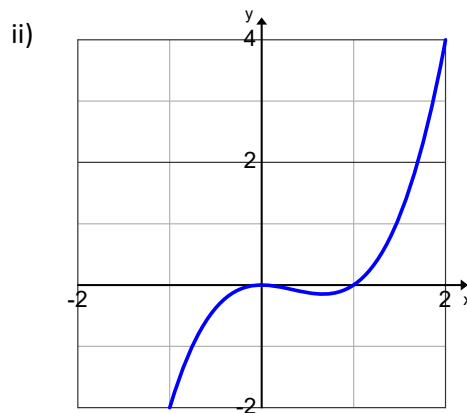
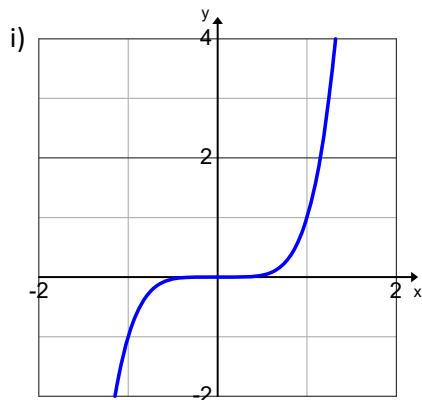


x	$f(x)$	$g(x)$	$(f + g)(x)$	$(f - g)(x)$	$(fg)(x)$	$\left(\frac{f}{g}\right)(x)$





x	$f(x)$	$g(x)$	$(f+g)(x)$	$(f-g)(x)$	$(fg)(x)$	$\left(\frac{f}{g}\right)(x)$



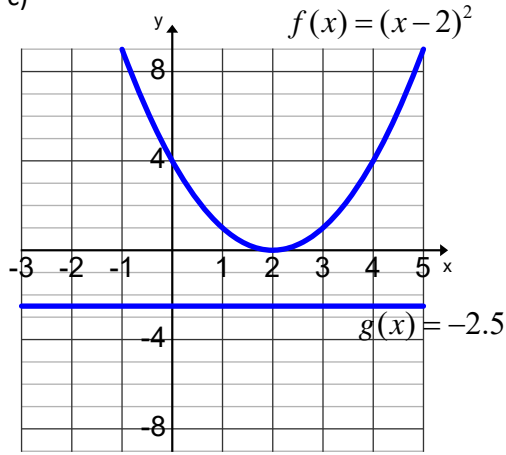
Answers:

ai) $y = \frac{f(x)}{g(x)} = x, x \neq 0$ ii) $y = f(x) + g(x) = x^2 + x$ iii) $y = f(x) - g(x) = x^2 - x$ iv) $y = f(x)g(x) = x^3$ bi) $y = f(x)g(x) = x^5$ ii) $y = f(x) - g(x) = x^3 - x^2$

iii) $y = \frac{f(x)}{g(x)} = x, x \neq 0$ iv) $y = f(x) + g(x) = x^3 + x^2$ ci) $y = f(x) + g(x) = (x-2)^2 - 2.5$ ii) $y = \frac{g(x)}{f(x)} = -0.4(x-2)^2, x \in R$ iii) $y = f(x)g(x) = -2.5(x-2)^2$

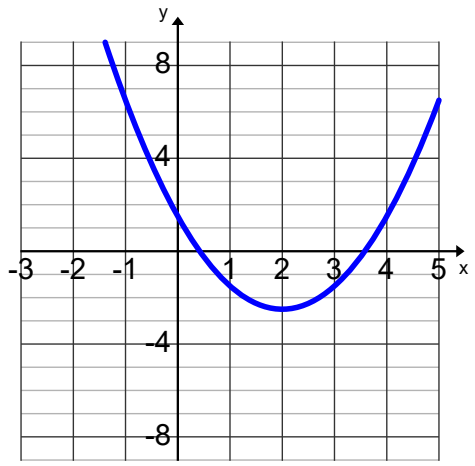
iv) $y = f(x) - g(x) = (x-2)^2 + 2.5$ di) $y = f(x) + g(x) = x^3 + x + 1$ ii) $y = f(x)g(x) = x^4 + x^3$ iii) $y = \frac{f(x)}{g(x)} = \frac{x^3}{x+1}, x \neq -1$ iv) $y = f(x) - g(x) = x^3 - x - 1$

c)

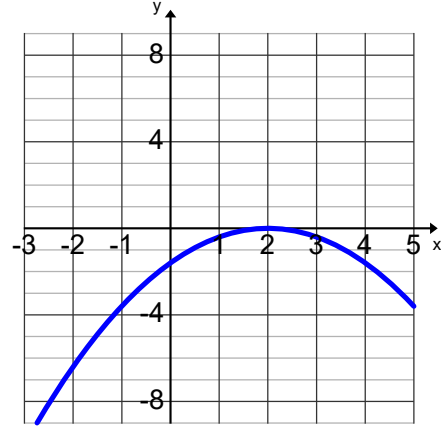


x	$f(x)$	$g(x)$	$(f+g)(x)$	$(f-g)(x)$	$(fg)(x)$	$\left(\frac{f}{g}\right)(x)$

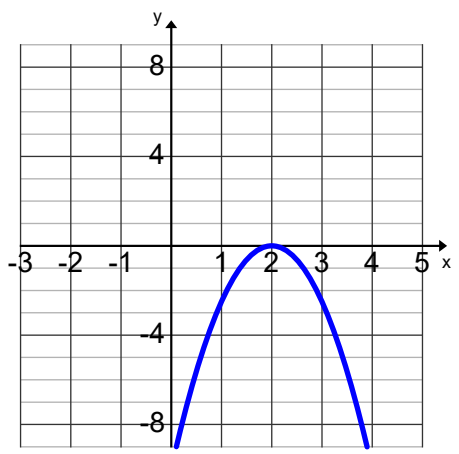
i)



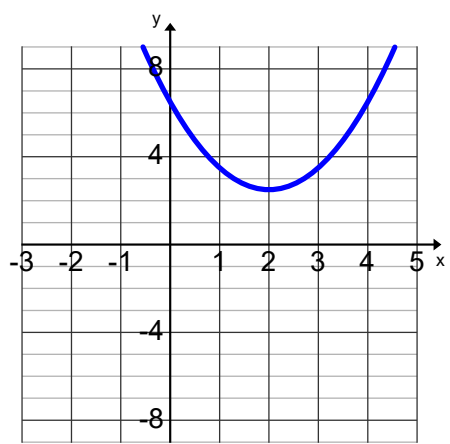
ii)

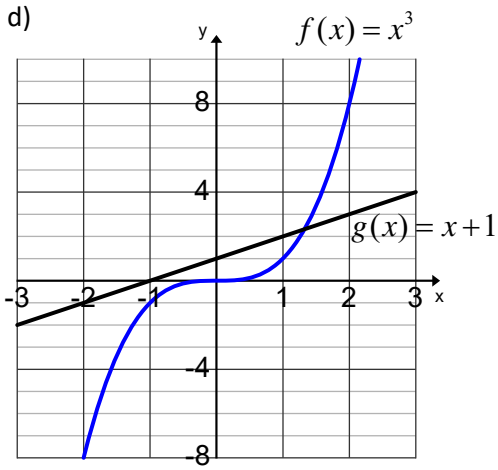


iii)



iv)





x	$f(x)$	$g(x)$	$(f + g)(x)$	$(f - g)(x)$	$(fg)(x)$	$\left(\frac{f}{g}\right)(x)$

