» **Further Graphs** | Combining Functions

Over the last 3½ years, you have gradually learnt to graph more and more *families* of functions (e.g. linear, quadratic, cubic, exponential, trigonometric, hyperbolic). You will now focus on combining these functions with the standard operations. Clearly label all intercepts and asymptotes.

1. Addition of functions

a. $y = x + e^x$

b. $y = x^2 + \frac{1}{x}$

c. $y = x + \sin x$

2. Subtraction of functions

a. $y = x - \frac{1}{x}$

b. $y = 2^x - x$

c. $y = x - \frac{1}{x}$

3. Multiplication of functions

a. $y = \mathrm{e}^x \sin x$

b. $y = x \cos x$

c. $y = x^2 2^x$

d. $y = (x+1)(x-2)$

e. $y = x(x-1)(x+3)$

f. $y = (x+2)^2(x-4)$

g. $y = x(x+2)^3$

h. $y = (x-3)^2(x+1)^3$

4. Division of functions (rational functions)

a. $y = \frac{\sin x}{x}$

b. $y = \frac{1}{\cos x}$

c. $y = \frac{x}{\sin x}$

d. $y = \frac{2^x}{x}$