

Combining Functions

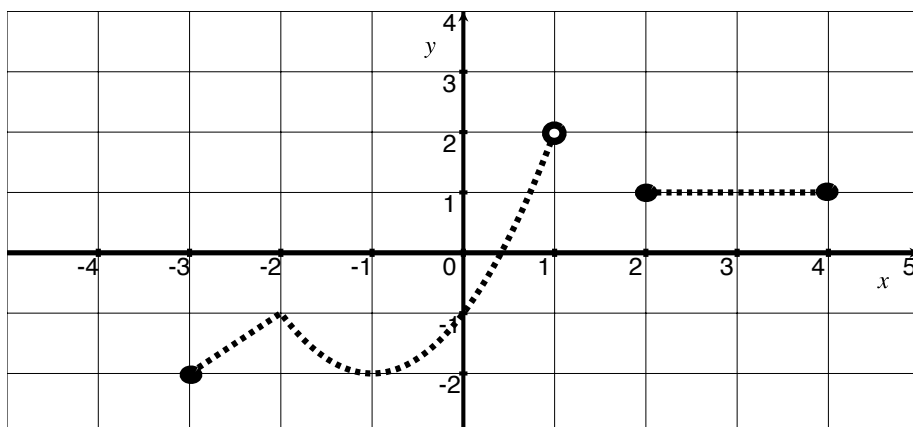
1. Let $\alpha(x) = \frac{x^2}{x+2}$ and $\beta(x) = 1 - \frac{1}{x+1}$

(a) Find the domain of α and β .

(b) Find $(\frac{\beta}{\alpha})(x)$ and its domain.

2. Let $g(x) = \sqrt{x}$ and f be the piece-wise defined function graphed below.

(a) Find the domain of g and f .



(b) Find $(f - g)(0)$

(c) Find $(g \cdot f)(4)$

3. Let $\alpha(x) = \frac{x^2}{x+1}$ and $\beta(x) = 1 - \frac{1}{x+1}$ Find $(\alpha \circ \beta)(x)$ and its domain.

4. Let $g(x) = \sqrt{x}$ and f be the piece-wise defined function graphed below.

(a) Find $(f \circ g)(9)$

(b) Find $(f \circ f)(-1)$