

Problem 8: Let $R(x) = \frac{2x - 1}{x + 1}$.

(a) List all the asymptotes of $R(x)$.

$x \sim \infty, R(x) \sim 2$: HORIZONTAL ASYMPTOTE $y = 2$
 $x \sim -1, R(x) \sim \infty$: VERTICAL ASYMPTOTE $x = -1$

(b) Show how to obtain R as the shift of a known graph

$$R(x) = \frac{2[(x+1)-1]-1}{x+1} = \frac{2(x+1)-2-1}{x+1} = 2 - \frac{3}{x+1}$$

So $R(x) = 2 - 3f(x+1)$ WHERE $f(x) = \frac{1}{x}$

(c) Sketch the graph $y = R(x)$.

