

(1) [5] Let $u(t) = \sqrt{\cos(t)}$. Find functions f and g so that $u(t) = (f \circ g)(t)$.

(2) [5] Evaluate the limit, if it exists:

$$\lim_{x \rightarrow 2} \frac{x^2 + x - 6}{x - 2}$$

(3) [5] Evaluate the limit, if it exists:

$$\lim_{x \rightarrow 7} \frac{\sqrt{x+2} - 3}{x - 7}$$