

Week 5 – Worksheet – MTH 305 (Spring 2017)

(1) Determine if the given equation (graph) describes y as a function of x .

(a) $x = y^2 - 2$

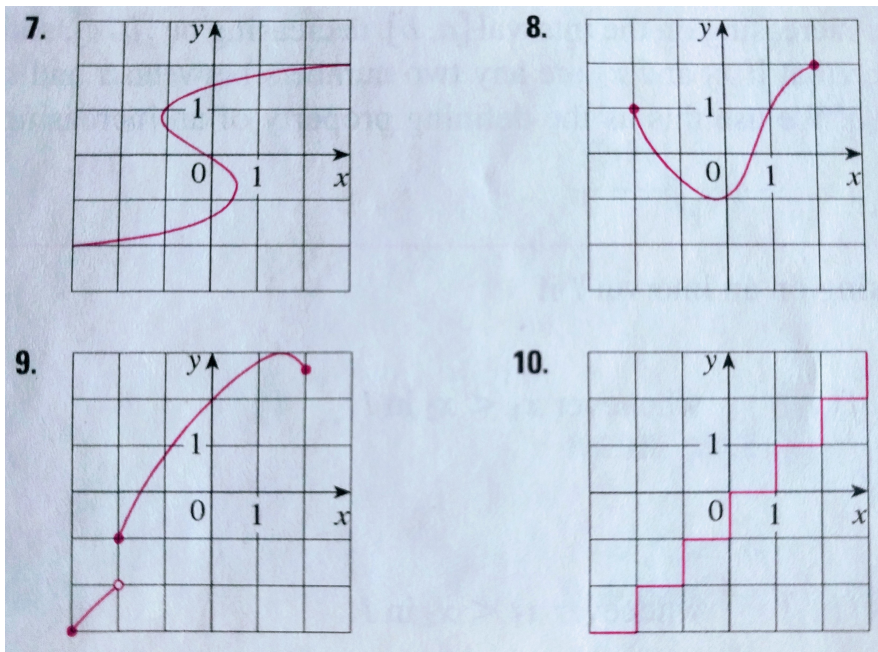
(b) $y = \sqrt{x+2}$

(c) $y^2 = x^2 + 2$

(d) $y = 7$

(e) $4y^5 - 5x = 20$

(f) $y = \begin{cases} x+2 & \text{if } x < 0, \\ 1-x & \text{if } x \geq 0. \end{cases}$



(2) Determine the domain of the given function.

(a) $f(x) = \frac{x+4}{x^2-9}$

(b) $f(t) = \sqrt[3]{2t-1}$

(c) $h(x) = \frac{1}{\sqrt[4]{x^2-5x}}$

(d) $G(x) = \frac{3x+|x|}{x}$

(e) $f(x) = \begin{cases} x+2 & \text{if } x \leq -1, \\ x^2 & \text{if } x > -1. \end{cases}$

(3) Determine the assignment rule and the domain of the specified composite functions.

(a) $f \circ g$ if $f(x) = 2 + 3x$ and $g(x) = -x + 2$.

(b) $f \circ g$ if $f(x) = |x|$ and $g(x) = -x$.

(c) $f \circ g, g \circ f, f \circ f$ and $g \circ g$ if $f(x) = x^2 - 1$ and $g(x) = 2x + 1$.

(d) $f \circ g, g \circ f, f \circ f$ and $g \circ g$ if $f(x) = 1 - 3x$ and $g(x) = \cos(x)$.

(e) $f \circ g, g \circ f, f \circ f$ and $g \circ g$ if $f(x) = 1 - \frac{1}{x}$ and $g(x) = \frac{x+1}{x+2}$.