

1. (1.5ea) Match each of the following functions with its (entire) domain.

_____ $f(x) = \sqrt{2x - 4}$

(A) $(-2, 2)$

(B) $[0, \infty)$

_____ $g(x) = \frac{x + 2}{6x - 12}$

(C) $[0, 2) \cup (2, \infty)$

(D) $[2, \infty)$

_____ $h(x) = \frac{x}{\sqrt{x - 2}}$

(E) $(2, \infty)$

(F) $(-\infty, \infty)$

_____ $k(x) = \frac{\sqrt{x}}{x - 2}$

(G) $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$

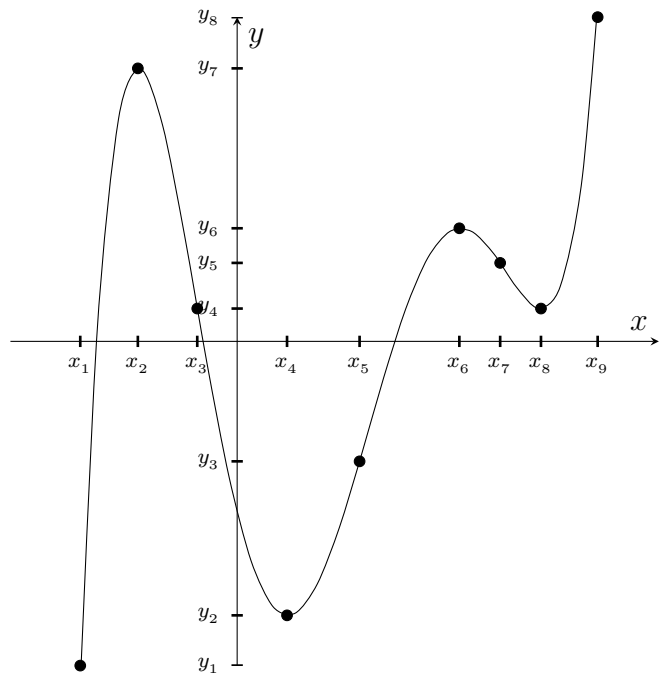
(H) $(-\infty, 2) \cup (2, \infty)$

2. (2ea) Identify the intervals on which the function graphed below is

a) Decreasing

b) Concave down

c) **Both** increasing *and* concave up



3. (1ea) Write an equation representing the following descriptions.
- (a) The stopping distance, d , of a vehicle is proportional to the square of the vehicle's velocity, v .

 - (b) The quantity Q is inversely proportional to the cube of t .
4. (2ea) Residents of the city of Calc-land who are connected to the municipal water supply are billed a fixed monthly amount plus a charge for each 100 cubic foot (HCF) of water used. A household using 20 hundred cubic feet was billed \$39, while one using 12 HCF was billed \$27.
- (a) What is the cost of each HCF of water used?

 - (b) Write the total monthly cost of a resident's water as a function of hundred cubic feet of water used.

 - (c) How many cubic feet of water used would lead to a bill of \$34.50?