

More problems for section 2.1 of *Essentials of Precalculus with Calculus Previews* by Zill and Dewar, 5e.

1. Find the domains of the given functions.

a. $f(x) = \sqrt{4x + 9}$

b. $g(x) = \sqrt{2 - 3x}$

c. $h(x) = \frac{1}{\sqrt{5x + 4}}$

d. $k(x) = \sqrt{x^2 - 7}$

e. $q(x) = \sqrt{x^2 + 2x - 8}$

f. $w(x) = \sqrt{x^2 + x - 12}$

g. $r(x) = \sqrt{16 + 6x - x^2}$

h. $t(x) = \sqrt{\frac{x + 2}{x + 8}}$

i. $H(x) = \frac{2}{x + 10} \sqrt{\frac{x + 2}{x + 8}}$

j. $\alpha(x) = \frac{\sqrt{(x^2 - 5x + 6)(x - 8)^2}}{x + 7}$

k. $\beta(x) = \sqrt{(4 - 3x - x^2)(x - 5)^2}$

l. $\varepsilon(x) = \frac{x + 7}{\sqrt{(x^2 - 5x + 6)(x - 8)^2}}$

Answers

- 1a. $[-9/4, \infty)$ 1b. $(-\infty, 2/3]$ 1c. $(-4/5, \infty)$ 1d. $(-\infty, -\sqrt{7}] \cup [\sqrt{7}, \infty)$ 1e. $(-\infty, -4] \cup [2, \infty)$
1f. $(-\infty, -4] \cup [3, \infty)$ 1g. $[-2, 8]$ 1h. $(-\infty, -8) \cup [-2, \infty)$ 1i. $(-\infty, -10) \cup (-10, -8) \cup [-2, \infty)$ 1j. $(-\infty, -7) \cup (-7, 2] \cup [3, \infty)$
1k. $[-1, 4] \cup \{5\}$ 1l. $(-\infty, 2) \cup (3, 8) \cup (8, \infty)$