

More problems for section 1.1 of *Essentials of Precalculus with Calculus Previews* by Zill and Dewar, 5e.

1. Solve for x . Write the solution set in interval form.

- a. $(x-5)(x+2)(x+1) \geq 0$ b. $\frac{(x-5)(x+2)}{x+1} \geq 0$ c. $\frac{x^2+x-6}{4-x} \leq 0$
- d. $\frac{3-x}{x^2-6x+8} \geq 0$ e. $\frac{(4-x)(x-3)}{(x+1)^2} \leq 0$ f. $\frac{x^2-3x-4}{x^2-6x+9} < 0$
- g. $(x+2)^2(x+1)^2(3-x) \leq 0$ h. $\frac{1}{x-2} < \frac{1}{x+3}$ i. $\frac{x+1}{x-2} \geq 2$
- j. $\frac{1}{x+4} \leq \frac{1}{1-x}$ k. $\frac{1}{4-x} \geq \frac{1}{2+x}$ l. $\frac{1}{x-3} > \frac{2}{x+5}$
- m. $\frac{1}{x-5} \geq \frac{1}{2x+1}$ n. $\frac{2}{x+3} \leq 3$

Answers

- 1a. $[-2, -1] \cup [5, \infty)$ 1b. $[-2, -1) \cup [5, \infty)$ 1c. $[-3, 2] \cup (4, \infty)$ 1d. $(-\infty, 2) \cup [3, 4)$ 1e. $(-\infty, -1) \cup (-1, 3] \cup [4, \infty)$ 1f. $(-1, 3) \cup (3, 4)$
1g. $\{-2\} \cup \{-1\} \cup [3, \infty)$ This can also be written as $\{-2, -1\} \cup [3, \infty)$ or as $\{-1, -2\} \cup [3, \infty)$. 1h. $(-3, 2)$ 1i. $(2, 5]$
1j. $(-\infty, -4) \cup [-3/2, 1)$ 1k. $(-\infty, -2) \cup [1, 4)$ 1l. $(-\infty, -5) \cup (3, 11)$ 1m. $[-6, -1/2) \cup (5, \infty)$ 1n. $(-\infty, -3) \cup [-7/3, \infty)$