Calculus I Section 1.4 Homework

1) $f(x) = \dfrac{2}{x}$

a) Explain why $f(x)$ is not continuous at $x = 0$.

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have at $x = 0$?

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

a) Explain why $f(x)$ is not continuous at $x = 4$.

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have at $x = 4$?

3) $f(x) = x^2 - 3x + 2$

a) Is $f(x)$ discontinuous anywhere?

b) Explain why $f(x)$ is continuous at $x = 4$.

4) $f(x) = 3x^2 - \cos x$

a) Is $f(x)$ discontinuous anywhere?

b) Explain why $f(x)$ is continuous at $x = \pi$.

5) $f(x) = \dfrac{x+1}{x^2 + 4x + 3}$

a) $f(x)$ is discontinuous at which x-values?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?

6) $f(x) = \dfrac{|x+1|}{x+1}$

a) $f(x)$ is discontinuous at which x-value(s)?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?

7) $f(x) = \begin{cases} x+1, x<0 \\ x^2+3, x \geq 0 \end{cases}$

a) $f(x)$ is discontinuous at which x-value(s)?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?

8) $f(x) = \begin{cases} x+4, x<1 \\ x^2+3, x \geq 1 \end{cases}$

a) $f(x)$ is discontinuous at which x-value(s)?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?

9) $f(x) = \tan \pi x$

a) $f(x)$ is discontinuous at which x-value(s)?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?

10) $f(x) = \cot \pi x$

a) $f(x)$ is discontinuous at which x-value(s)?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?

11) $f(x) = \csc x$

a) $f(x)$ is discontinuous at which x-value(s)?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?

12) $f(x) = \dfrac{x-3}{x^2 - x - 6}$

a) $f(x)$ is discontinuous at which x-value(s)?

b) What type of discontinuity (removable or nonremovable) does $f(x)$ have?