

MCV4U-Calculus (piecewise functions)

1. given : $f(x) = \begin{cases} x-3, & x \leq -2 \\ 2x-1, & -2 < x \leq 3 \\ x^2 - 4x + 3, & x > 3 \end{cases}$ find

a. $\lim_{x \rightarrow -4^-} f(x) =$

b. $\lim_{x \rightarrow -4^+} f(x) =$

c. $\lim_{x \rightarrow -4} f(x) =$

d. $\lim_{x \rightarrow 5} f(x) =$

e. $f(-4) =$

f. $f(1) =$

g. $\lim_{x \rightarrow -2^-} f(x) =$

h. $\lim_{x \rightarrow -2^+} f(x) =$

i. $\lim_{x \rightarrow -2} f(x) =$

j. $\lim_{x \rightarrow 3^-} f(x) =$

k. $\lim_{x \rightarrow 3^+} f(x) =$

l. $\lim_{x \rightarrow 3} f(x) =$

m. $f(-2) =$

n. $f(3) =$

o. Is f continuous at $x = -5$?

p. Is f continuous at $x = -2$?

q. Is f continuous at $x = 3$?

2. given : $f(x) = \begin{cases} x - 3, & x \leq 2 \\ 2x - 1, & 2 < x < 5 \\ x^2 - 4x + 4, & x \geq 5 \end{cases}$ find

a. $\lim_{x \rightarrow 2^-} f(x) =$

b. $\lim_{x \rightarrow 2^+} f(x) =$

c. $\lim_{x \rightarrow 2} f(x) =$

d. $\lim_{x \rightarrow 3} f(x) =$

e. $\lim_{x \rightarrow 5^-} f(x) =$

f. $\lim_{x \rightarrow 5^+} f(x) =$

g. $\lim_{x \rightarrow 5} f(x) =$

h. $f(2) =$

i. $f(3) =$

j. $f(5) =$

k. Is f continuous at $x = 5$?

l. Is f continuous at $x = 2$?

m. Is f continuous at $x = 3$?

3. Given $f(x) = \begin{cases} cx - 1, & x \leq -1 \\ cx^2 + 4x - 3, & x > -1 \end{cases}$

Find c , so that f is continuous at $x = -1$