# CALCULUS 1: QUIZ SOLUTIONS

**Question 1**

We say: "The limit of $f(x)$ as $x$ tends to $a$, is $b$". How do we write it?

A. $\lim_{x\to a} f(x) \to b$ B. $f(x) \to b$ C. $\lim_{x\to a} f(x) = b$

D. $\lim_{x\to b} f(x) = a$

**Solution**

The accepted way to write "the limit of $f(x)$ as $x$ tends to $a$, is $b$" is $\lim_{x\to a} f(x) = b$.

So, the correct answer is C.

**Question 2**

Determine the value of $\lim_{x\to 0}(3-2x)$.

A. 3 B. 2 C. 1 D. 0

**Solution**

$$\lim_{x\to 0}(3-2x) = 3-2(0) = 3$$

So, the correct answer is A.

**Question 3**

Determine the limit: $\lim_{x\to -1}[(x-1)^2 + x + 1]$.

A. -4 B. -2 C. 0 D. 4

**Solution**

$$\begin{aligned}\lim_{x\to -1}[(x-1)^2 + x + 1] &= [(-1-1)^2 + (-1) + 1] \\ &= (-2)^2 + 0 \\ &= 4\end{aligned}$$

So, the correct answer is D.

**Question 4**

What is the value of $\lim_{x\to 1}\dfrac{x+3}{2x-1}$?

A. 4 B. 3 C. 2 D. 1

**Solution**

$$\begin{aligned}\lim_{x\to 1}\frac{x+3}{2x-1} &= \frac{1+3}{2(1)-1} \\ &= \frac{4}{2-1} \\ &= 4\end{aligned}$$

So, the correct answer is A.

**Question 5**

Determine the limit: $\lim_{x\to -1}\left(\frac{x^2+3x-1}{x-2}\right)$.

A. 2 B. 1 C. 0 D. -1

**Solution**

$$\lim_{x\to -1}\left(\frac{x^2+3x-1}{x-2}\right)=\left(\frac{(-1)^2+3(-1)-1}{-1-2}\right)$$

$$=\frac{1-3-1}{-3}$$

$$=1$$

So, the correct answer is B.