

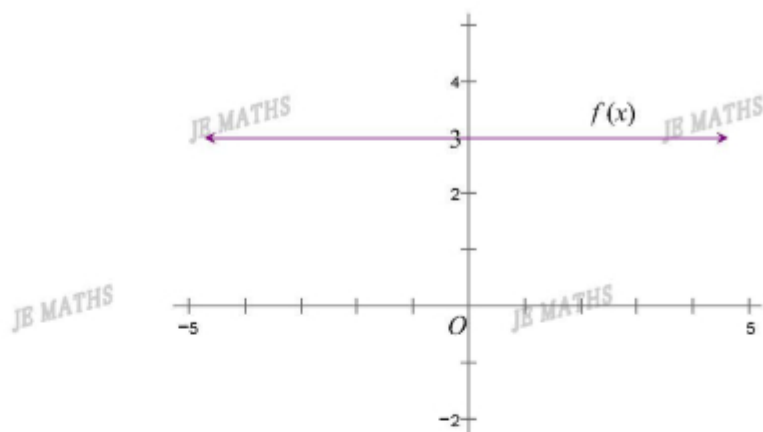
Stage 1

1. Given the graph of $f(x)$, find the limit of $f(x)$.

(a) $\lim_{x \rightarrow 0} f(x) = \underline{\hspace{2cm}}$

JE MATHS

$\lim_{x \rightarrow 4} f(x) = \underline{\hspace{2cm}}$

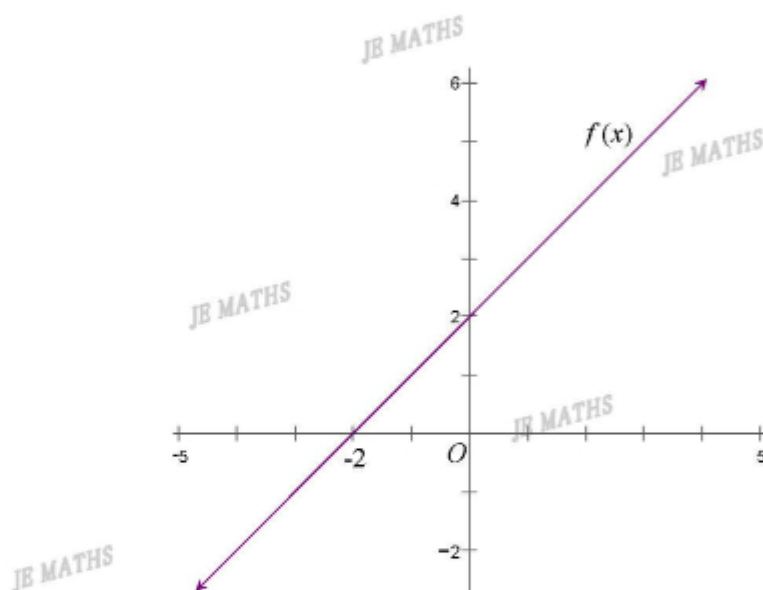


(b) $\lim_{x \rightarrow 0} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 2} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 1} f(x) = \underline{\hspace{2cm}}$

JE MATHS

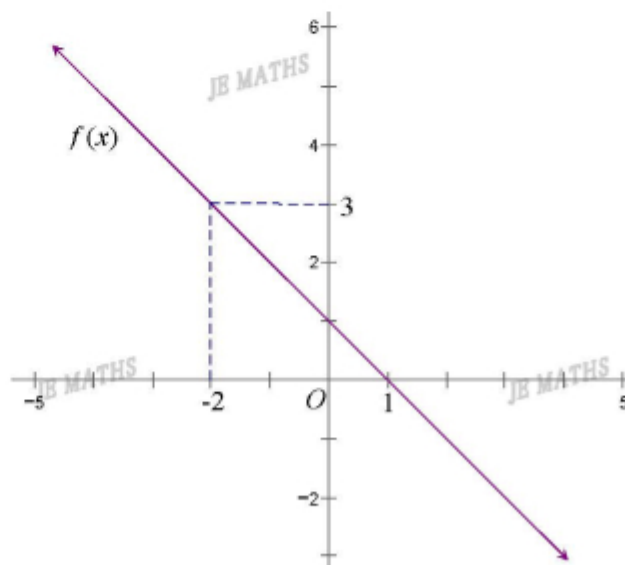


(c) $\lim_{x \rightarrow -2} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 0} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 1} f(x) = \underline{\hspace{2cm}}$

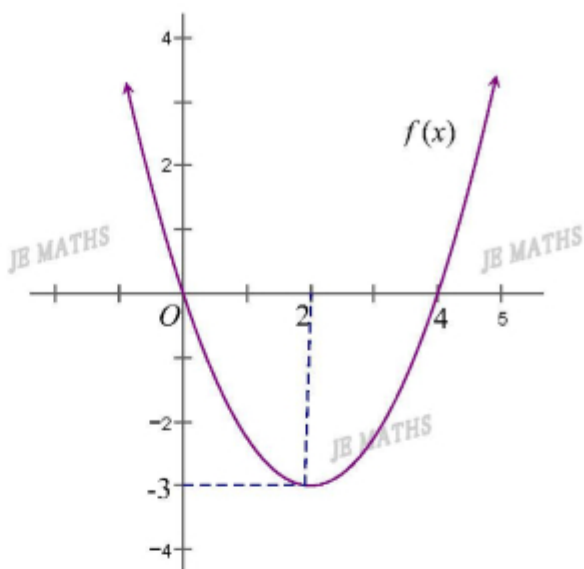
JE MATHS



(d) $\lim_{x \rightarrow 2} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 4} f(x) = \underline{\hspace{2cm}}$

JE MATHS

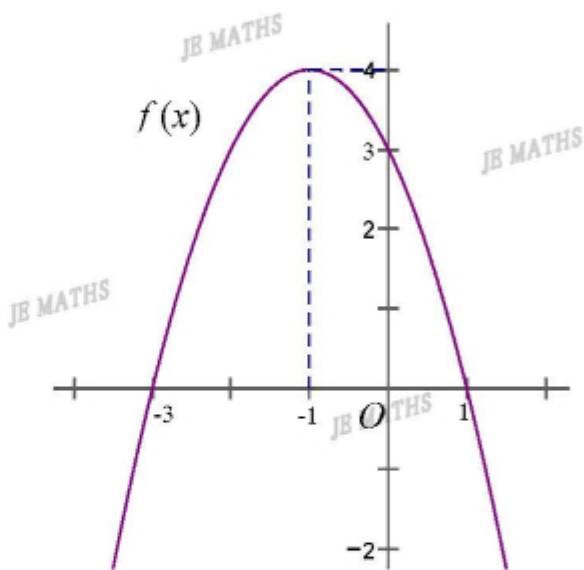


(e) $\lim_{x \rightarrow -1} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 0} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow -3} f(x) = \underline{\hspace{2cm}}$

JE MATHS

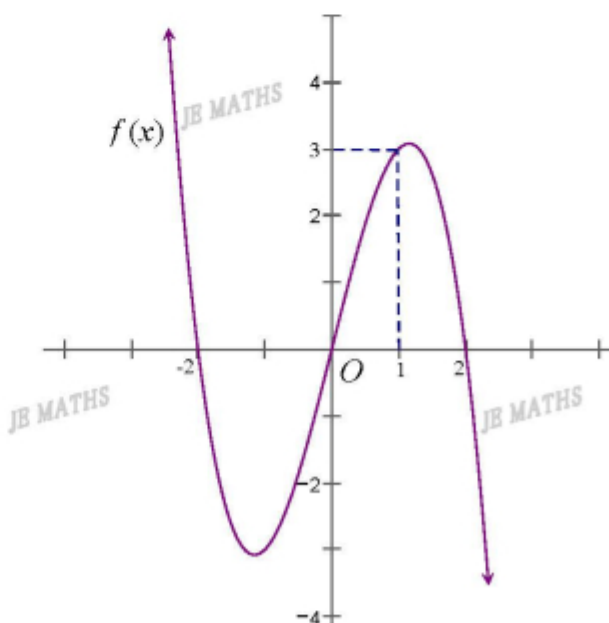


(f) $\lim_{x \rightarrow -2} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 0} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 1} f(x) = \underline{\hspace{2cm}}$

JE MATHS

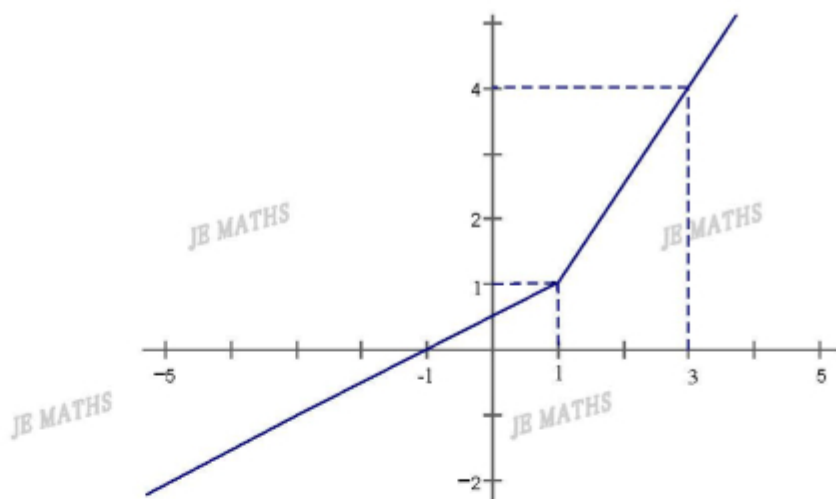


(g) $\lim_{x \rightarrow -3} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow -1} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 1} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 3} f(x) = \underline{\hspace{2cm}}$

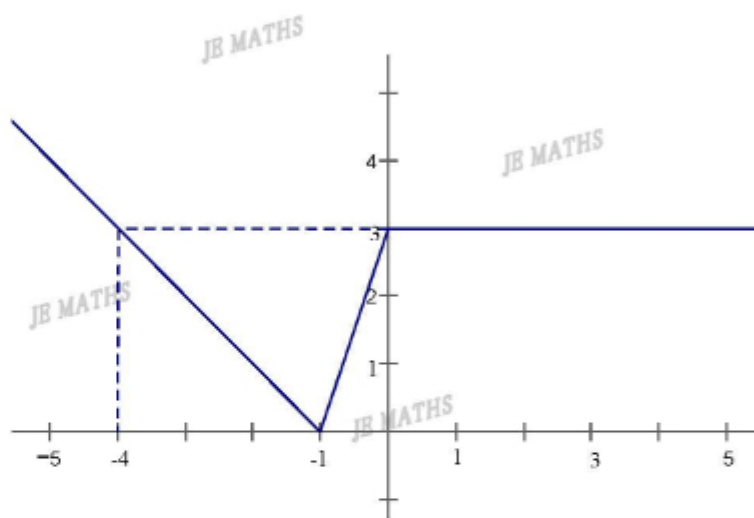


(h) $\lim_{x \rightarrow -4} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow -1} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 0} f(x) = \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 2} f(x) = \underline{\hspace{2cm}}$



2. Find the limit of each function.

(a) $\lim_{x \rightarrow 1} 4$

(b) $\lim_{x \rightarrow 3} 2x$

(c) $\lim_{x \rightarrow 0} (x+7)$

(d) $\lim_{x \rightarrow 1} (2x-1)$

(e) $\lim_{x \rightarrow -1} \left(\frac{x+1}{3} \right)$

(f) $\lim_{x \rightarrow 2} \left(7 - \frac{x}{2} \right)$

(g) $\lim_{x \rightarrow 1} (x^2 + 3x)$

(h) $\lim_{x \rightarrow \frac{1}{2}} (1 - x^2)$

(i) $\lim_{x \rightarrow -1} (x^2 - x + 2)$

(j) $\lim_{h \rightarrow 0} (h^2 - 6h)$

(k) $\lim_{x \rightarrow 1} \left(\frac{x-2}{x+1} \right)$

(l) $\lim_{x \rightarrow 4} \left(\frac{x^2}{x-3} \right)$

(m) $\lim_{x \rightarrow 3} \left(\frac{3x}{x^2 - 1} \right)$

(n) $\lim_{x \rightarrow 2} \left(\frac{x^2 + 2x}{x - 4} \right)$

Stage 1

1.

(a) (3)

(3)

(b) (2)

(0)

(3)

(c) (3)

(1)

(0)

(d) (-3)

(0)

(e) (4)

(3)

(0)

(f) (0)

(0)

(3)

(g) (-1)

(0)

(1)

(4)

(h) (3)

(0)

(3)

(3)

2.

(a) $\lim_{x \rightarrow 1} 4 = 4$

(b) $\lim_{x \rightarrow 3} 2x = 2 \times 3 = 6$

(c) $\lim_{x \rightarrow 0} (x + 7) = 0 + 7 = 7$

(d) $\lim_{x \rightarrow 4} (2x - 1) = 2 \times 4 - 1 = 7$

(e) $\lim_{x \rightarrow -1} \left(\frac{x+1}{3} \right) = \frac{-1+1}{3} = 0$

(f) $\lim_{x \rightarrow 2} \left(7 - \frac{x}{2} \right) = 7 - \frac{2}{2} = 6$

(g) $\lim_{x \rightarrow 1} (x^2 + 3x) = 1^2 + 3 \cdot 1 = 4$

(h) $\lim_{x \rightarrow \frac{1}{2}} (1 - x^2) = 1 - \left(\frac{1}{2} \right)^2 = \frac{3}{4}$

$$(i) \lim_{x \rightarrow -1} (x^2 - x + 2) = (-1)^2 - (-1) + 2 = 4$$

$$(j) \lim_{h \rightarrow 0} (h^2 - 6h) = 0^2 - 6 \times 0 = 0$$

$$(k) \lim_{x \rightarrow 1} \left(\frac{x-2}{x+1} \right) = \frac{1-2}{1+1} = -\frac{1}{2}$$

$$(l) \lim_{x \rightarrow 4} \left(\frac{x^2}{x-3} \right) = \frac{4^2}{4-3} = 16$$

$$(m) \lim_{x \rightarrow 3} \left(\frac{3x}{x^2 - 1} \right) = \frac{3 \times 3}{3^2 - 1} = \frac{9}{8}$$

$$(n) \lim_{x \rightarrow 2} \left(\frac{x^2 + 2x}{x - 4} \right) = \frac{2^2 + 2 \times 2}{2 - 4} = -4$$

