

BA SANGAM COLLEGE
YEAR 13
MATHEMATICS
WORKSHEET 3

STRAND 4 – LIMITS AND CONTINUITY

1. Find

a. $\lim_{x \rightarrow \infty} \frac{3 - 4x + 2x^2}{4 - 7x - 3x^2}$

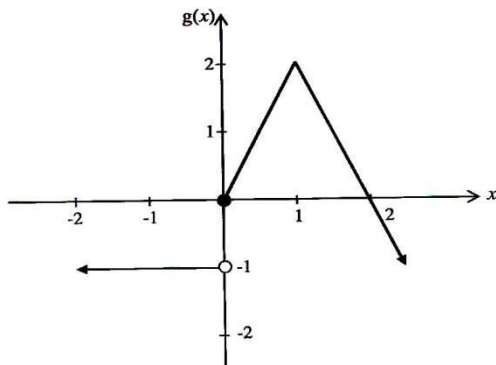
b. $\lim_{x \rightarrow -7} \frac{x^2 - 49}{x + 7}$

2. Evaluate the following limits:

a. $\lim_{x \rightarrow \infty} \frac{(4x + 3)(3x - 2)}{(2x + 5)^2}$

b. $\lim_{x \rightarrow -2} \frac{x + 2}{4 - x^2}$

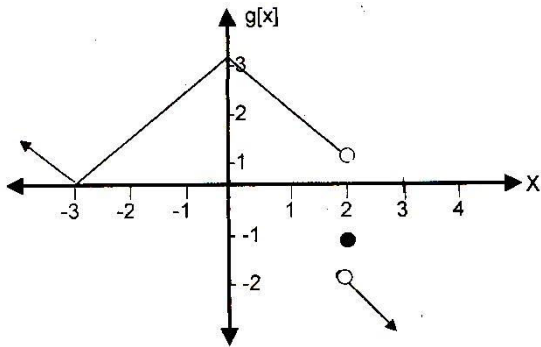
3. The graph of a function $g(x)$ is shown below.



Use the graph above to find the value(s) of x for which $g(x)$ is:

- a. discontinuous
- b. non-differentiable
- c. equal to zero

4. The graph of another piece-wise function $g(x)$ is given below.



- For what value(s) of x is $g(x)$ discontinuous?
- For what value(s) of x is $g(x)$ non-differentiable?
- Find $\lim_{x \rightarrow 2} g(x)$
- Find $\lim_{x \rightarrow 2^-} g(x)$
- Find $g(2)$