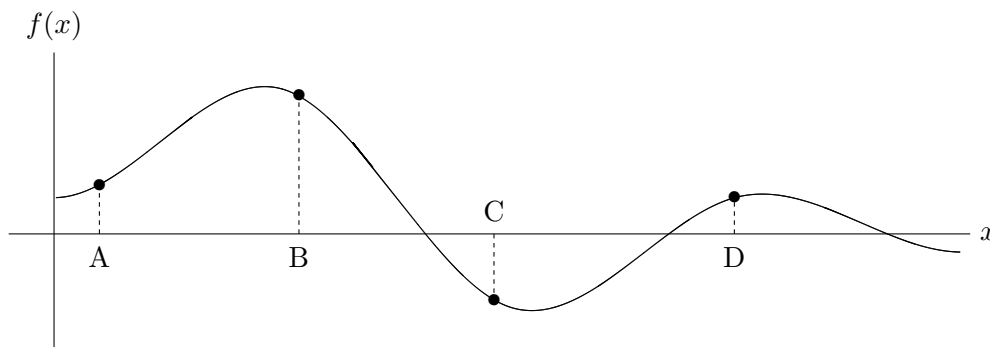


1. (16 points) For each of the three questions, fill in the blank(s) using the appropriate suggested answer(s). *No explanation is required.*

(a) The polynomial $P_2(x) = 1 + 3(x - a) - 2(x - a)^2$ is the second degree Taylor polynomial approximating the function f for x near a . The graph of f is given in the figure. Which of the points A, B, C, or D on the x -axis has a as its x -coordinate?



ANSWER : _____ .

(b) Three of the tests for deciding the convergence or divergence of an infinite series are:

A. integral test,

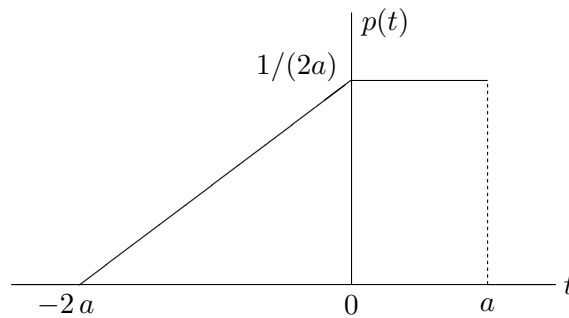
B. comparison test,

C. ratio test.

Using each of these letters **A**, **B**, **C** *exactly once*, fill in the blank by each of the following infinite series with the label of the most appropriate test to use in deciding whether the series converges or diverges.

$$\sum_{n=1}^{\infty} \frac{(n!)^2}{(2n)!} \quad \text{_____} \quad \sum_{n=1}^{\infty} \frac{n \sin^2 n}{1 + n^{5/2}} \quad \text{_____} \quad \sum_{n=2}^{\infty} \frac{1}{n \ln n} \quad \text{_____}$$

(c) The graph of the distribution $p(t)$ is shown on the figure, where $a > 0$ is a constant. Fill in the blank with “*greater than*”, “*equal to*”, or “*smaller than*” to make the sentence below the graph correct.



The median of the distribution $p(t)$ is _____ its mean.

