

MathPro Tutoring Practice Tests

This chapter test correlates with:

Calculus of a Single Variable, 8th ed.

by Larson, Hostetler, Edwards

Houghton Mifflin, 2006

or

Calculus with Analytic Geometry, 8th ed.

by Larson, Hostetler, Edwards

Houghton Mifflin, 2006

Chapter 3: Applications of Differentiation

[Also:
7th edition, Sections 3.1-3.9
6th edition, Sections 3.1-3.9]

A few notes:

- If you are using a different textbook, this may not be a comprehensive chapter test for you.
- Solutions are available at www.mathprotutoring.com/tests.
- Angle measures are represented using radian measure, unless there is a pressing reason to use degree measure. If degree measure is used, there will always be a ° symbol.
- This test is copyright material. You must obtain express written permission from Linda Sinclair (linda@mathprotutoring.com) in order to duplicate and/or share this test with others.
- Please check www.mathprotutoring.com/tests soon for new tests. New ones will be added just as quickly as they are created.

7. Find any point(s) of inflection for $f(x) = \sin 2x$ in the interval $(0, \pi)$.

8. Find the limit:

a.
$$\lim_{x \rightarrow \infty} \frac{x}{2x - 3}$$

b.
$$\lim_{x \rightarrow \infty} \frac{x^2}{2x - 3}$$

c.
$$\lim_{x \rightarrow -\infty} \frac{x^2}{2x - 3}$$

d.
$$\lim_{x \rightarrow \infty} \frac{x^2 + 7x - 5}{2x^4 - 3x + 1}$$

9. Sketch the curve by finding all intercepts, asymptotes, extrema, and points

of inflection: $f(x) = \frac{7x+2}{x^2-4}$

10. You have 300 ft of fencing with which to enclose a rectangular yard. One side of the yard is against a building and does not need fencing. Find the largest area that can be enclosed in this way.
11. Find two positive numbers that satisfy the following two conditions:
- 1) Their product is 70.
 - 2) The sum of the first and three times the second is a minimum.

12. The base and height of a rectangle are found to be 9 cm and 4 cm, respectively. The possible error in each measurement is .1 cm. Use differentials to approximate the possible propagated error in computing the area of the rectangle.