

## Worksheet: Applications of Derivatives

Maharashtra State Board · Class 12 · Mathematics · 5 questions · 15 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 15

**Q1.** Find two positive numbers with sum 16 and maximum product. [3 marks]

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**Q2.** Find the intervals where  $f(x) = 2x^3 - 15x^2 + 36x + 7$  is increasing or decreasing. [3 marks]

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**Q3.** Find the tangent and normal to  $x^2 + y^2 = 25$  at (3,4). [3 marks]

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**Q4.** A disc's radius increases at 0.02 cm/s. Find the rate of increase of area at  $r = 7$  cm. [2 marks]

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**Q5.** Find the absolute maximum and minimum of  $f(x) = 2x^3 - 3x^2 - 12x + 5$  on  $[-2, 3]$ . [4 marks]

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