

## Worksheet: Limits and Derivatives

Uttar Pradesh State Board · Class 11 · Mathematics · 3 questions · 12 marks

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

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

Score: \_\_\_\_\_ / 12

**Q1.** Evaluate:  $\lim_{x \rightarrow 2} \frac{(x^2 - 4)}{(x - 2)}$ . [2 marks]

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**Q2.** Find the derivative of  $f(x) = x^3$  from first principles. [4 marks]

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**Q3.** Differentiate  $y = x^2 \sin x$  using the product rule, then evaluate  $\frac{dy}{dx}$  at  $x = \frac{\pi}{2}$ . [6 marks]

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