



MATHEMATICAL METHODS (UNITS 3&4) (YEAR 12) · PRACTICE ASSIGNMENT

Calculus and Functions Practice

CALCULUS HARD

Work through each question in order. Show your working in the space provided where it helps — there's no time limit, just do your best.

- 1

Find the derivative of $f(x) = 3x^4 - 2x^2 + 5$.
- 2

Solve: $e^{(2x)} = 7$, giving your answer to 3 decimal places.
- 3

Find the inverse of $f(x) = 2x + 3$.
- 4

A continuous random variable X has pdf $f(x) = 2x$ for $0 \leq x \leq 1$. Find $P(X > 0.5)$.
- 5

Find the equation of the tangent to $y = x^3$ at the point $(1, 1)$.
- 6

Expand $(x - 2)^4$ using the binomial theorem (first two terms only).

TEACHER'S REMARKS

Score: _____ / 6