

91262



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
KIA NOHO TAKATŪ KI TŌ ĀMUA AO!

2

SUPERVISOR'S USE ONLY

Level 2 Mathematics and Statistics, 2019

91262 Apply calculus methods in solving problems

9.30 a.m. Thursday 21 November 2019
Credits: Five

Achievement	Achievement with Merit	Achievement with Excellence
Apply calculus methods in solving problems.	Apply calculus methods, using relational thinking, in solving problems.	Apply calculus methods, using extended abstract thinking, in solving problems.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

Make sure that you have Formulae Sheet L2–MATHF.

Show ALL working.

If you need more room for any answer, use the extra space provided at the back of this booklet.

You must show the use of calculus in answering all questions in this paper.

Check that this booklet has pages 2–15 in the correct order and that none of these pages is blank.

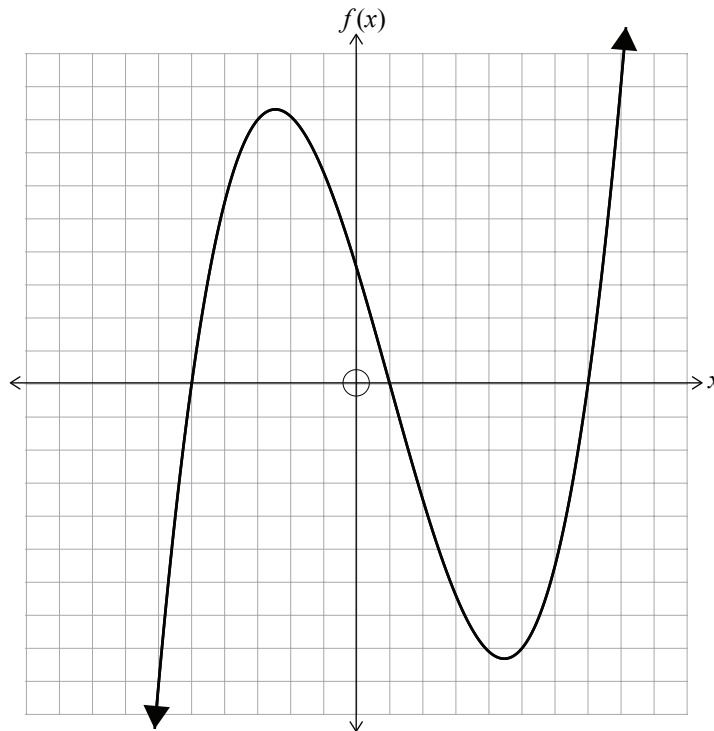
YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

TOTAL

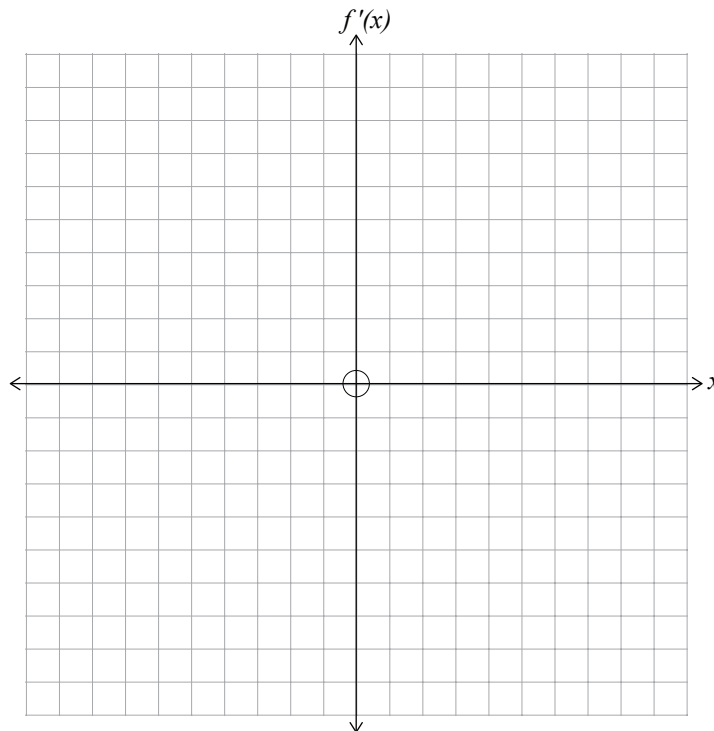
ASSESSOR'S USE ONLY

QUESTION TWO

- (a) The graph of a function $y = f(x)$ is shown on the axes below.
Both sets of axes have the same scale.

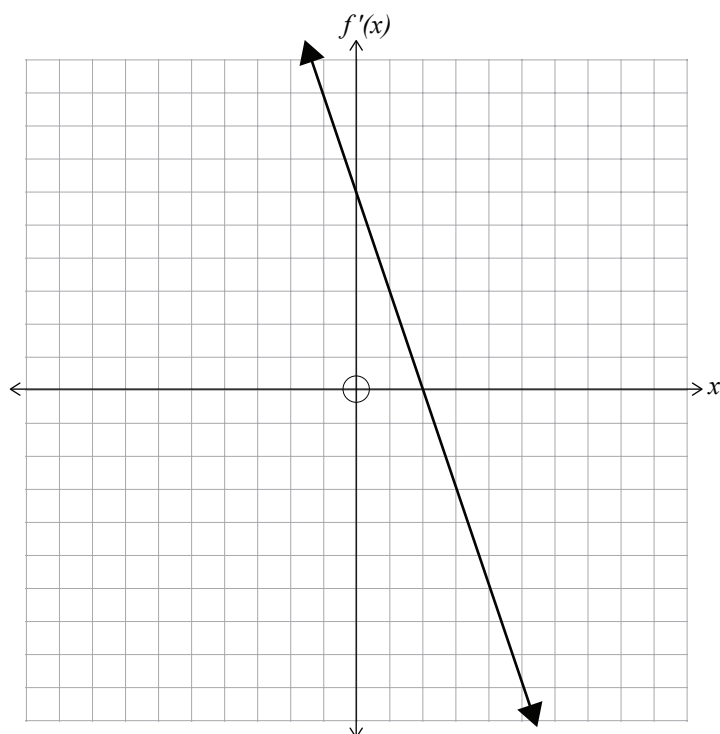


Sketch the graph of the gradient function $y = f'(x)$ on the axes below.



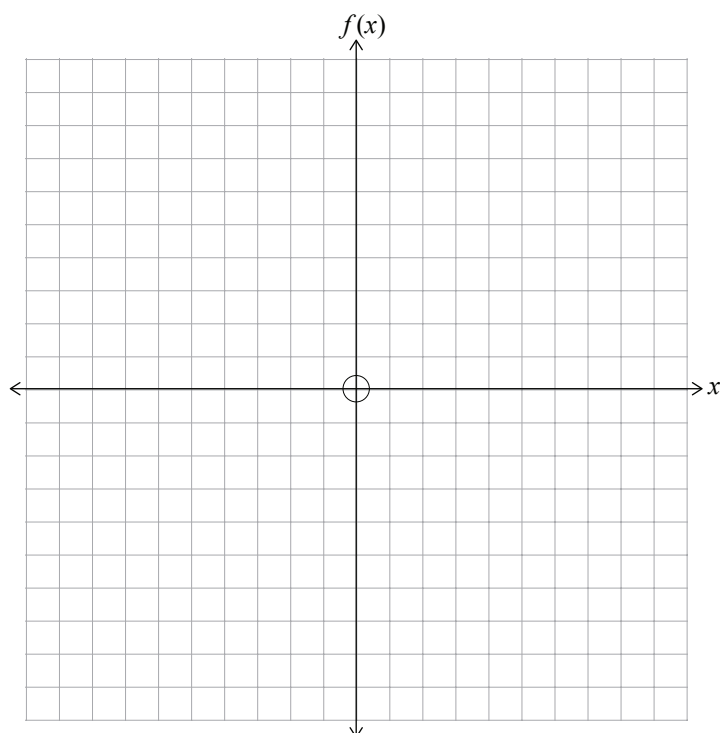
If you need to redo this question part, use the grids on page 12.

- (d) The diagram below shows the graph of the gradient function $y = f'(x)$ of a function $y = f(x)$. Both sets of axes have the same scale.



The graph of the function passes through the origin $(0,0)$.

On the axes below, sketch the graph of the function $f(x)$.



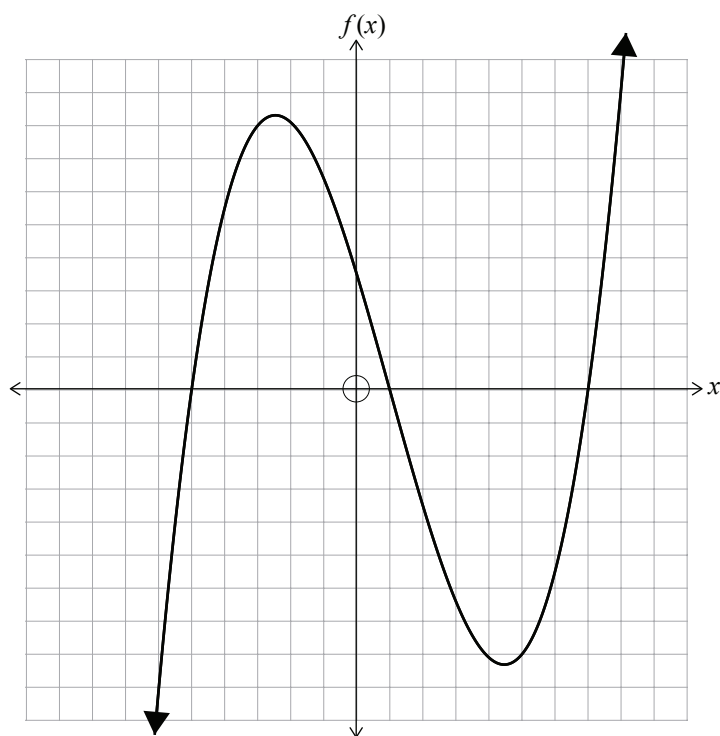
If you need to redo this question part, use the grids on page 13.

SPARE GRIDS

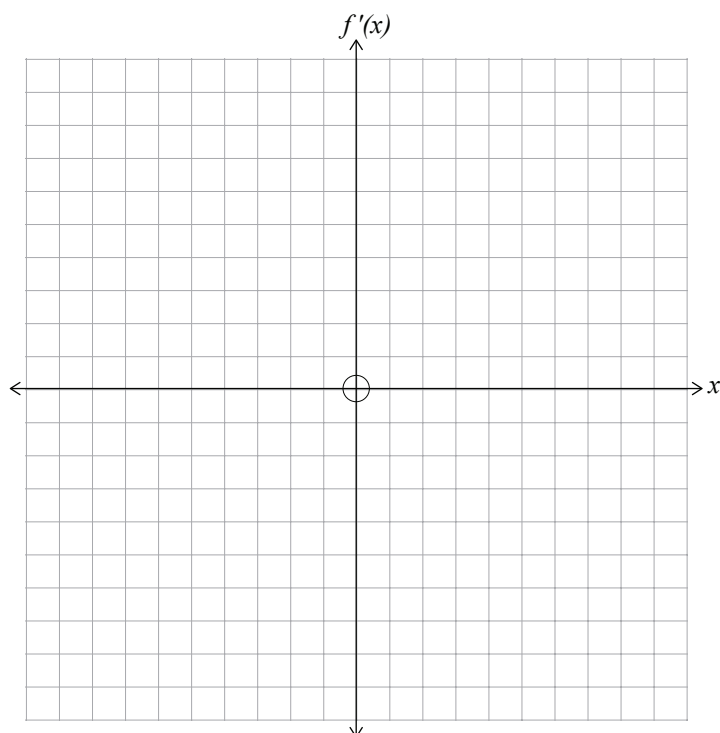
If you need to redo Question Two (a), use the grid below. Make sure it is clear which answer you want marked.

QUESTION TWO

- (a) The graph of a function $y = f(x)$ is shown on the axes below.
Both sets of axes have the same scale.



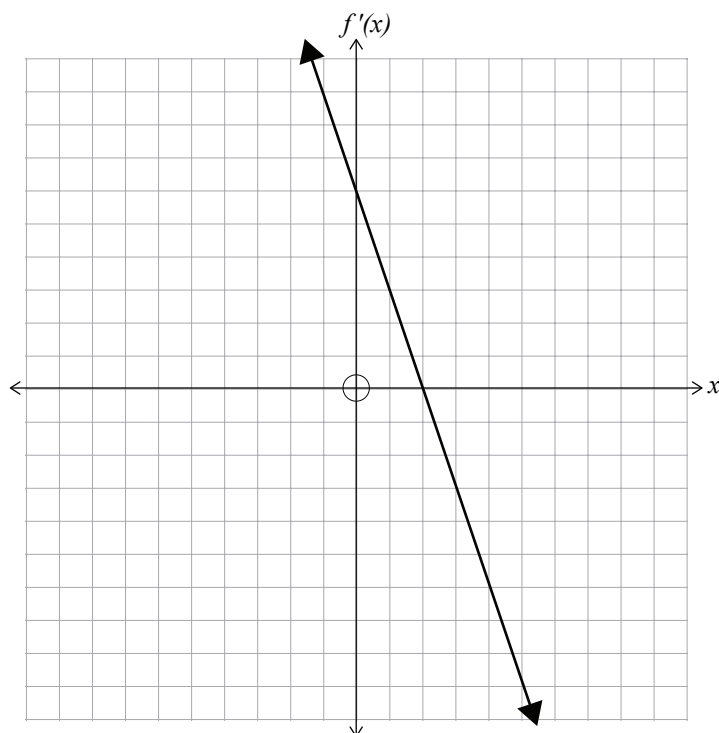
Sketch the graph of the gradient function $y = f'(x)$ on the axes below.



If you need to redo Question Two (d), use the grid below. Make sure it is clear which answer you want marked.

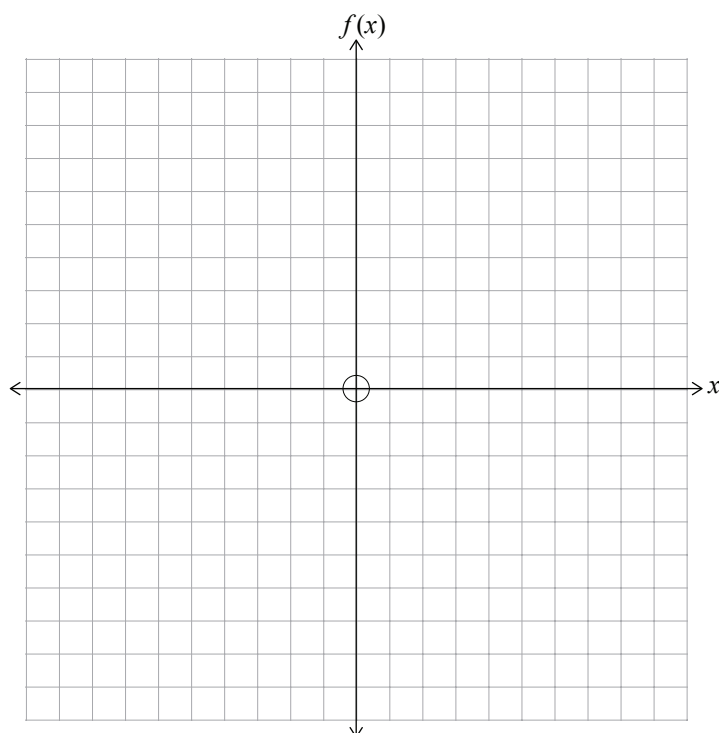
QUESTION TWO

- (d) The diagram below shows the graph of the gradient function $y = f'(x)$ of a function $y = f(x)$. Both sets of axes have the same scale.



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