Carlingford High School

Mathematics

Year 9 5.2 Term 1 Examination 2019

Name: _____

Circle your teacher's name:

Miss Aung **Mr Fardouly/Mrs Blakeley**

Mr Gong **Mrs Lobejko**

Time allowed: 55 minutes

- Show all necessary working.
- Answer all questions in the spaces provided.
- Marks may be deducted for careless or untidy work.
- Questions marked with an asterisk * are extension level questions.
- Complete the examination in blue or black pen.

Topic	Financial Mathematics	Algebraic Techniques	Total
Mark	/24	/56	/80

FINANCE

For all finance questions:
1 year = 52 weeks.

1. Charlotte earns time-and-a-half on Saturdays and double time on Sundays. She works 35 hours from Monday to Friday, 8 hours on Saturday and 5 hours on Sunday. Calculate Charlotte's total earnings if her normal rate of pay is $15.40 per hour. **[2 marks]**

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2. Isaiah earns a salary of $3 872.50 per month. How much does Isaiah earn per week? **[1 mark]**

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3.* A fitness trainer conducts a class with 12 participants who pay $15 each. The class lasts for 45 minutes. What is the instructor's average hour income? **[2 marks]**

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4. A real estate agent is paid a monthly retainer of $750 and a commission of 1.5% of the value of properties sold. Her sales in February were $867 400. Calculate her income for February. **[2 marks]**

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5. Fred earns 85 cents for each toy he assembles. Find the number of toys Fred must assemble to earn (at least) $200. **[2 marks]**

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6. Lily's annual salary is $58 410. Find: **[3 marks]**
(a) Lily's normal weekly pay.

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(b) the annual leave loading of 17.5% on 4 weeks pay.

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(c) Lily's total pay for the four week holiday.

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7. Akiko earns a gross fortnightly salary of $1 235. **[3 marks]**
(a) Calculate her weekly gross pay

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(b) Use the PAYG tax table below to find Akiko's PAYG tax paid per week.

Weekly pay ($)	PAYG tax withheld ($)
576–583	164
584–593	166
594–603	168
604–611	170
612–620	172

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(c) Each week Akiko also pay $47.56 to her superannuation fund and $26.33 in union fees. Calculate her weekly net pay.

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8. Yusef earns a salary of $76 400 and other income of $2034. He has allowable deductions of $1655 in travel expenses and $310 in donations to charities. **[2 marks]**
(a) What is Yusef's taxable income?

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(b) Calculate the 2% Medicare levy Yusef must pay.

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9. Adam has an annual taxable income of $38 600. Use the income tax table below to calculate the amount of income tax Adam must pay. **[1 mark]**

Taxable income	Tax on this income
0–$18 200	Nil
$18 201–$37 000	19c for each $1 over $18 200
$37 001–$80 000	$3572 plus 32.5c for each $1 over $37 000
$80 001 – $180 000	$17 547 plus 37c for each $1 over $80 000
$180 001 and over	$54 547 plus 45c for each $1 over $180 000

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10. A car is priced at $20 900.

[2 marks]

(a) Calculate the GST payable

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(b) Find the final price of the car

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11*. A jacket discounted by 30% after Christmas sells for $119. What was the original price of the jacket? **[1 mark]**

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12. Find the simple interest earned on \$7590 at 2.3% p.a. invested for 8 months. **[1 mark]**

13. After 3 years, an investment of \$2500 has earned \$285 in simple interest. What is the annual interest rate? **[2 marks]**

ALGEBRA

14. Write an algebraic expression for each statement: **[4 marks]**

(a) the sum of x and y

(b) 4 less than h

(c) 6 more than half of k

(d) the average of a, b and c

15. If $a = 3, b = 7$ and $c = -5$, find the value of each expression: **[6 marks]**

(a) $ab + c$ **[2]**

(b) $2c^2 - b$ **[2]**

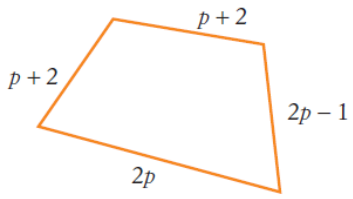
(c) $\frac{b-c}{a}$ **[2]**

16. Simplify the following: **[2 marks]**

(a) $6x + 2y + 5y - 3x$

(b) $3h^2 + 2h + 9h^2 - 2h^2$

17. Write an expression for the perimeter of the following shape: **[2 marks]**



18. Simplify the following: **[5 marks]**

(a) $-3m \times 5$

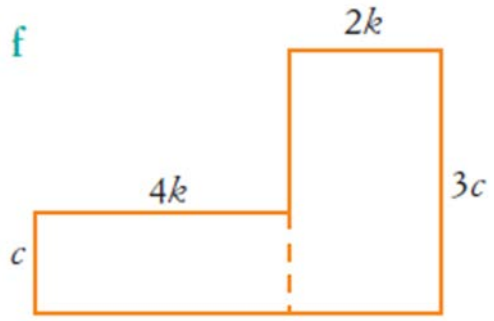
(b) $4h \times 2 \times (-5h)$

(c) $(-6k)^2$

(d) $\frac{32c}{-4}$

(e) $9x \div 45xy$

19. Write a simplified algebraic expression for the area of the following shape: **[2 marks]**



20. Simplify: **[14 marks]**

(a) $\frac{x}{5} + \frac{2x}{5}$

(b) $\frac{7m}{10} - \frac{3m}{10}$ **[2]**

(c) $\frac{2k}{5} + \frac{m}{6}$ **[2]**

(d) $\frac{v}{5} \times \frac{2}{3}$

(e) $\frac{5x}{6y^2} \times \frac{2y}{15}$ **[2]**

(f) $\frac{q}{4} \div \frac{3}{4}$ **[2]**

(g) $\frac{xh}{5} \div \frac{3h}{15}$ **[2]**

(h) $\frac{d}{3} \div \frac{5s}{2} \times \frac{3d}{7}$ **[2]**

21. Expand: **[3 marks]**

(a) $5(m-7)$

(b) $3x(4y+7x)$

(c) $-y(y+5)$

22. Expand and simplify by collecting like terms: **[4 marks]**

(a) $5(2y+6)+4y$ **[2]**

(b) $2w(3w-8)-4(2w-7)$ **[2]**

23. Factorise: **[4 marks]**

(a) $9n+27$

(b) $-18j+12$

(c) $28gh^2-35g^2h$

(d*) $5(a+7)-b(a+7)$

24. Expand and simplify: **[6 marks]**

(a) $(t+3)(t-9)$ **[2]**

(b) $(m+3)(5-m)$ **[2]**

(c) $(2a-5)(3a+6)$ **[2]**

25*. A rectangular garden bed has a length of 3m and a width of 2m. The length is to be increased by x m and the width is to be increased by y m. **[4 marks]**

(a) Write an expression for the new length of the garden bed.

(b) Write an expression for the new width of the garden bed.

(c) Hence find a simplified expression for the new area of the garden bed. **[2]**

END OF EXAM