Carlingford High School

Mathematics

Year 9 5.3 Term 1 Examination

2020

Time allowed: 50 minutes

Name:_____ Class: 9MAT3__

Please circle your teacher:	**Mrs Lego**	**Mrs Wilson/ Mrs Young**	**Mr Gong/ Mr Cheng**	**Ms Bennett/ Miss Aung**

Instructions:

- Use blue or black pen
- Pencil may be used for graphs or diagrams only
- Board approved calculators may be used
- No lending or borrowing
- Show all necessary working out in the space provided
- Marks may be deducted for untidy setting out
- All questions are worth one mark unless otherwise shown

Topic	Financial Mathematics	Algebra	Total	
Mark	/30	/31	/61	%

Financial Mathematics (30 marks))

For all calculations, use 1 year = 52 weeks.

1. Yasmin is paid $1048 for a normal 40 hour week.

a) What is her hourly wage?

b) How much would she be paid in a week where she works 35 hours normal time and 8 hours time and a half? **2**

2. Tom is paid a salary of $3820 per month.

a) What is his yearly salary?

b) Andy has a job paying $1900 per fortnight. How much more or less does he earn per week than Tom? **2**

3. Yang receives 17.5% of 4 weeks normal pay as leave loading. If she earns $1660 per week, what is her total holiday pay? **2**

4. Cameron's gross pay is $2196 per fortnight. His deductions are PAYG of $434, union fees of $22.20, health insurance of $87.50 and voluntary superannuation of $100.

a) Calculate Cameron's net pay.

b) What are Cameron's deductions as a percentage of his gross pay? Answer to 1 decimal place.

5. a) Complete the passage, using the most suitable words from the list below. **2**

bonus	**salary**
commission	**royalty**
interest	**wage**

Tania is a salesperson. She earns a base _____ or retainer of $39 000 p.a., plus _____ of 6% of all weekly sales above $1000.

b) How much would Tania earn in a week when she sold $5000 worth of goods? **2**

c) How much would she need to sell to earn $3000 in one fortnight? **3**

6. Jainil earns a salary of $96 200 p.a. He also received income of $4375 from his share portfolio. His allowable deductions were $800 in donations to charity and $720 in work related expenses.

a) Calculate Jainil's taxable income.

b) Medicare levy is charged at 2% of taxable income. Calculate Jainil's Medicare levy.

c) Using the tax table provided, calculate Jainil's income tax payable. **2**

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	$3,572 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

d) Jainil has paid PAYG tax of $970 per fortnight throughout the financial year. Calculate his overall tax debt or tax refund. **3**

7. Find the simple interest earned on an investment of $5000 invested at 2.4% p.a. for 3 years.

8. For how long would $12 000 need to be invested at 4% simple interest in order to have a final value of $20 000? Answer in years and months. **2**

9. Calculate the compound interest earned when $23 000 is invested at 3% p.a. compounded monthly for 5 years. **3**

Algebra (31 marks)

1. Simplify.

a) $3x^2 + 5y - x^2 + 2y$

b) $4m \times 6mn$

c) $9rs \div 27st$

d) $\frac{2a}{3} + \frac{a}{5}$

e) $\frac{5a}{2b} - \frac{1}{b}$

2. Simplify.

a) $\frac{x}{4} \times \frac{x}{2}$

b) $\frac{12p}{q^2} \times \frac{4p^2\,q}{3}$

c) $\frac{7t}{12} \div \frac{3t}{28}$

d) $\frac{3u}{20v} \div \frac{2u^2}{5v} \times \frac{u}{12}$ **2**

3. Expand and simplify.

a) $5(3p - q)$

b) $2m(4m + 7n)$

c) $-11(3x - 2) - 8$ **2**

d) $3x(x + 3) - 2(x + 3)$ **2**

4. Factorise.

a) $12a + 18$

b) $16m^2 - 8mn$

c) $2p(p + 4) + (p + 4)$

5. Cathy ran four 100 metre sprints. Her times were $3t - 2$, $t + 5$, $2t + 1$ and $2t + 8$ seconds. What was her average time? Give your answer in simplified form. **2**

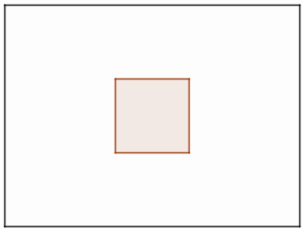
6. Expand and simplify.

a) $(x + 2)(x + 3)$ **2**

b) $(2y - 1)(y + 3)$ **2**

c) $\left(m + \frac{2}{m}\right)\left(\frac{3}{m} - m\right) - \frac{1}{2m}\left(\frac{5}{m} - 6m\right)$ **3**

7. A square flower garden sits in the centre of a rectangular lawn. The lawn, which is covered in grass, is twice as long the flower garden, and the lawn is 5 metres wider than it is long.



Let x be the length of the flower garden in metres. Find simplified expressions for

a) The perimeter of the lawn.

b) The area of grass. **2**

■ **End of exam** ■ **Please check your work** ■