Year 9 Assessment Task - Consumer and Algebra 2005

OUR LADY OF THE SACRED HEART COLLEGE KENSINGTON

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STUDENT - NAME / NUMBER.	
MATHEMATICS TEACHER	

2005

Year 9

Mathematics

Time allowed: 45 minutes

Assessed Outcomes

- PAS5.3.1 Uses algebraic techniques to simplify expressions, expand binomial products and factorise quadratic expressions
- PAS5.3.2 Solves linear, quadratic and simultaneous equations, solves and graphs inequalities, and rearranges literal equation
- NS5.1.2 Solves consumer arithmetic problems involving earning and spending money
- NS5.2.2 Solves consumer arithmetic problems involving compound interest, depreciation and successive discounts

Directions to Candidates

- There are 4 sections
 - o Section 1: PAS5.3.1 (12 marks)
 - o Section 2: PAS5.3.2 (13 marks)
 - o Section 3: NS5.1.2(17 marks)
 - o Section 4: NS5.2.2 (3 marks)
- Show all working on the paper.
- Good Luck!!

	Outcome	Question	Answer including working	Mark
1	PAS 5.3.1	Expand these binomial products.	-	
		a) $(x+3)(x+4)$		2
		• .		
		. ,		
		b) $(5a-6)(b-3)$	1	2
		5 ' 6	<i>'</i>	1, 1
2	PAS 5.3.1	Find the area of the following rectangle in simplest form.		2
		(2x+3)		
		(x-4)		
3	PAS 5.3.1	Complete the following perfect square.		
		a) $(a + b)^2$		1
<u>.</u>	D. C		and the same of th	
4	PAS 5.3.1	Expand the perfect square a) $(9-2\nu)^2$		2
	·			
5	PAS	Expand $(2a+3)(2a-3)$		
	5.3.1	,		1

			,	
6.	PAS 5.3.1	State whether the expression $4x^2 + 6x + 9$ is a perfect square.		. 2
	3.3.1	Include a reason for your answer.		
-		TOTAL FOR PASS.3.1	. 1) /12
7	PAS 5.3.2	Write an algebraic expression for each of the following:		
	3.3.2			
		a) the sum of p , x and 7 .		1
		b) 9 times the number that is 5		1
		less than p.		
			_	
8	PAS	Solve the following:		
	5.3.2	a)	/	1
		$(a) - 6 < \frac{t}{2}$		
	1	$\frac{x}{b} + \frac{x}{6} = 3$		2
		8 6 b	-	
		7	,	
		3y. 5 - 11		2
		c) $\frac{3y}{4} + 5 = 11$		
			'	
			\	
				,
		;		

		d) $\frac{3(x-2)}{5} = 1$		2	
9	PAS 5.3.2	If the perimeter of this rectangular block of land is 46m, find the length and width of the block. (x+3) m		2	
(10)	PAS	Tim is twice as old as Sally. What		/ / /	
(10)	5.3.2	are their present ages if in 10 years' time their ages will add to 89?		2	1
		TOTAL FOR OUTCOME 5.3.2		713	
11	PAS 5.1.2	Jane is paid \$450 per week. a) What is her annual salary?	<u> </u>	1	7
		b) Calculate her fortnightly salary?		1	
	5.1.2	Gaynor is a process worker who is paid \$12.35 for each toy she makes. How many toys did she make if she earned \$469.30		1	

1	3 PAS	Tobalia alija alija ali		
1	5.1.2	John is paid a weekly retainer of \$250 plus a commission of 3% on		2
-		the value of his sales. How much		
1		would John earn in a week where he		V
	_	sold \$15 500 worth of goods.		1
14		Greg earns a salary of \$ 29 000 per		2
	5.1.2	annum and he receives a pay rise of		
	-	4%. What will his salary be after the pay rise.		
-		pay rise.		
		i	,	
15	1	Read the following quote by Louise		2
	5.1.2	Dodson (Sydney Morning Herald,		_
		May 11, 2005) about the recent budget.		
		W. From July 1 the top tax rate of 47 per cent will not kick in until a per-		
-		son earns \$95,000 a year - up from \$70,000.		
		ope For the lowest income	. 1	
		earners the marginal tax rate drops		
		from 17 to 15 per cent.")-	
	-	(page 1)		
1 1		Explain what this statement means,		`
		perhaps including an example to		1
16	PAS	substantiate your words. Helen has applied for the following job advertisement.		
	5.1.2	Troom has applied for the following job advertisement.		
		SAME SAME AND THE		
		AREA HEALTH SERVICE		1
		neas weapage on www.wsahs.nsw.gov.au.sc	- 1 -	
		PHARMACY ASSISTANT/TECHNICIAN (1)		
		and non-sterile manufacturing, stock management N.B. This is NOT a Lab Technicials and the stock management N.B. This is NOT a Lab Technicials and the stock management N.B. This is NOT a Lab Technicials and the stock management and the stock m	1.	
		Australian resident of have a current Australian work		
		344.1328. Dispensing drug distribution; sterile and non-sterile manufacturing, stock management. N.B. This is NOT 2 tab technician position, shugt be annual trailing resident, or have a current, Australian resident, or have a current, Australian work permit. Selection criteria and enquiries: Joanne Bisoglio 9845 5015 or Joanne Bisoglio 9849 5015 or Joanne Bisoglio 9849 5015 or Joanne Bisoglio 9845 5015 or Joanne Bisog		
	1	The second course page: 20.05,05		
	.]		-	1'
		a. After reading the advertisement	+-	1
	.	what would be her annual salary?		1
	<u> </u>			

	•	
b. Helen would be allowed tax	li i	
deductions of \$654 per annum and		
union fees of \$134 per annum.		
i) Calculate her taxable		2
income.		
		l
ii) Using the tax table below		3
calculate the tax payable.		
Taxable income Tax n	ayable	
\$1–\$6000 Nil	againe	
\$6001-\$20000 17 cents for each \$1 or	ver \$6000	
\$20 001-\$50 000 \$2380 + 30 cents for each	The state of the s	
\$50 001 –\$60 000 \$11 380 + 42 cents for		
\$60 001 and over \$15 580 + 47 cents for		
, , , , , , , , , , , , , , , , , , , ,	1	
* .		,
	TG .	
ii) Calculate the Medicare levy by		
using the table below.		2
Taxable income		
\$1–\$13 807 Nil	Aedicare levy	-
and the second of the second o	#1 #12 00T	
a the manners of an ability and an analysis of the second	at n wa thent on a will a company of the first of	
\$14 927 and over Flat 1.5% of taxa	ible income	
		·
	·	
		1
		- 1
	5 1	
TOTAL FOR OUTCOME NS5.1.2		/17
		121

17 PAS 5.2.2	1 Duple and having a 2570 baile off all	2
	b) If you pay by cash you receive a further 5% discount. What price	1
	would you pay for the dress with this further discount? OUTCOME FOR NS5.2.2	2

REDO ANY QUESTIONS HERE. CLEARLY MARK THE QUESTION.

CHALLENGE

ONLY ATTEMPT THIS QUESTION IF YOU ARE FINISHED. It is not counted in your marks but more to encourage thinking.

Expand and simplify

 $2x(9x-2y)^2$





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325

Assessed Outcomes

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- PAS5.3.2 Solves linear, quadratic and simultaneous equations, solves and graphs inequalities, and rearranges literal equation
- NS5.1.2 Solves consumer arithmetic problems involving earning and spending money
- NS5.2.2 Solves consumer arithmetic problems involving compound interest, depreciation and successive discounts

Directions to Candidates

- There are 4 sections
 - o Section 1: PAS5.3.1 (12 marks)
 - o Section 2: PAS5.3.2 (13 marks)
 - o Section 3: NS5.1.2(17 marks)
 - o Section 4: NS5.2.2 (3 marks)
- Show all working on the paper.
- Good Luck!!



<u> </u>	Outcome	Question Answer including working	Mark
1	PAS 5.3.1	Expand these binomial products. a) $(x+3)(x+4)$ $\widehat{x}^2 + 4 + 3x + 12$ $\widehat{x}^2 + 4 + 3x + 12$	2
		b) $(5a-6)(b-3)$	2
2	PAS 5.3.1	Find the area of the following rectangle in simplest form. (2x+3) $(x-4)$	2
3	PAS 5.3.1	Complete the following perfect square. (a + b) ² $\frac{2}{a}b^{2} + 2ab + b^{2}.$	1
4	PAS 5.3.1	Expand the perfect square a) $(9-2v)^2$ $(9-2v)^2$ $(9-2v)^2$	2
5	PAS 5.3.1	Expand $(2a+3)(2a-3)$ $(2a+3)(2a-3)$ $(2a+3)(2a-3)$ $(2a+3)(2a-3)$ $(2a+3)(2a-3)$ $(2a+3)(2a-3)$ $(2a+3)(2a-3)$ $(2a+3)(2a-3)$ $(2a+3)(2a-3)$	1

6.	PAS 5.3.1	State whether the expression $4x^2 + 6x + 9$ is a perfect square. Include a reason for your answer.	perfect square due for if so the expression	2
		TOTAL FOR PAS5.3.1	would be for2 + 12et 9	2 /12
7	PAS	Write an algebraic expression for		$\frac{1}{2}$ / 12
,	5.3.2	each of the following:	pta+7	
		a) the sum of p , x and 7 .	a) 9C + 7 = P. OF P = 3C - 9C - X	1
		b) 9 times the number that is 5 less than p.	b) Ancotrops 96 100	1
			9 (p-5)	-
8	PAS	Solve the following:		
•	5.3.2	a	$-6 < \frac{2}{2}$	
		1 .	76 \ 7	1
		$a) - 6 < \frac{t}{2}$		
			-6×2 < £	
			-12 〈	
į			- 1	
		$(b)\frac{x}{8} + \frac{x}{6} = 3$	3 X>-12	2
		V8 6	2 + 3c +24 8 + 3c +24	~
		b	1 = 3×24	
			% % ,	
			, ,	
١			3x+4x=72	
- 1			$7\infty = 72$.	,
- 1		2	$\alpha = \frac{1}{2}$	
		c) $\frac{3y}{4} + 5 = 11$	-10 ²	2
l			39/2 = 1	
		c. (3y + 5=11) C	760=11	
		2 22 1.15	345=1124	
		= 5y + 20 = 4 4	= 418	'
		= 3y + 20 = 44 = 3y = 24	2. 1/1/6	
		24	39 =X+4 (-3)	
		- 4 - 5 /	4 239	ļ
		= 8: //	8 10	
			y= 17 X V	
_ :		\		

Γ		1 2/ 2)		
		d) $\frac{3(x-2)}{5} = 1$	300-6 = 1	2
			3x-6=1×5	
			\$x = 5 + 6	
			$x = 3\frac{2}{3}$	
			3.	
9	PAS 5.3.2	If the perimeter of this rectangular block of land is 46m, find the length and width of the block.	$\lambda(x+3)+2x=4L$	2
		(x+3) m	2x+6+20c=46	
	,	x m	40c = 46-6	
			idth = 10m = 40 length = 13m $x = 10$.	/
			2 10 10	
10	PAS 5.3.2	Tim is twice as old as Sally. What are their present ages if in 10 years' time their ages will add to 89?	\$ 3 het/rin be sale	2
		5 (2 + 10) + (2 oc +10) = 89	2967×100	,
	32420=	19 Why are	Sally = 32:	
	3×= 6	23 () X 2 X 2 X 2 X 2 X 2 X 2 X 2 X 2 X 2 X	22+100 +100	
		TOTAL FOR OUTCOME 5.3.2	x-29.69)	/13
11	PAS	Jane is naid \$450 per week	<u> </u>	713
	5.1.2	a)What is her annual salary?	a)450 × 5 2= \$23 400 annual salary	1
		b) Calculate her fortnightly salary?	b) 450 x 2 = \$ 900 formightly	1
12	PAS 5.1.2	Gaynor is a process worker who is paid \$12.35 for each toy she makes. How many toys did she make if she earned \$469.30	464.30 = 38 toy 51	1

	13	PAS	John is paid a weekly retainer of		<u> </u>
		5.1.2	\$250 plus a commission of 3% on	0.03×19500 = 465.	2
			the value of his sales. How much would John earn in a week where he	466+250=\$715 /	
			sold \$15 500 worth of goods.		
			The state of goods.	-	
	14	1	Greg earns a salary of \$ 29 000 per	20.000 × 0.00	2
		5.1.2	annum and he receives a pay rise of	29000 × 0.04 = 1160	-
			4%. What will his salary be after the pay rise.	1160 + 2900 + 4060-X	
		1		301601	
	1.5	DAG	D 11 011	and the second	
	15	PAS 5.1.2	Read the following quote by Louise Dodson (Sydney Morning Herald,	1))	2
		3.1.2	May 11, 2005) about the recent	It is saying that from	
			budget.	the 1st of July people's	
			From July 1 the top tax rate of	tax rate of 47 % will	1
			47 per cent will not kick in until a per- son earns \$95,000 a year - up from		
			\$70,000.	Li Comment	
			earners the marginal tax rate drops	the a person ears >.	
			from 17 to 15 per cent."	\$95000, 800, \$70,000.	1
	(3)	DA .	(page 1)	7	-
	(6)	repre.	under \$ 20,000 only pay 15% comings above \$6000	people who earn	1
	GS	Salmares	between 70,000 + 95000 remain	les, their tax rate	
	(4)	on 427	Explain what this statement means.	10.00	
\Box		Tax!	perhaps including an example to	will be come 15%	
	16	PAS	substantiate your words.	not 17% ×	
	.	5.1.2	Helen has applied for the following job	Top tax bracket will	
			SYDNEY WEST	0 570 0001	
			ARPA HEALTH CEDUIAR	to tan ood . This	
	1		and Area a weepage an www.wsahs.nsw.go	Wanter And Colored to Colored	·
1			PHARMACY ASSISTANT/TECHNI \$44,132pa. Dispensing, drug distribution		
	İ		\$44,1326. Dispensing, drug distribution and on-sterile manufacturing, stock management. N.B. This is NOT. "a Lab Technician position: Mus Australian resident or have a current Australian permit. Selection criteria and enquiries: 'Joanne' 8 9845 6015 or joanne, bisogolio@vasahs.nsw mor.	tox & the refore have	
			Australian resident or have a current Australian permit. Selection criteria and enquiries: Joanne E	n work	
			9845 6015 or joanne_bisoglio@wsahs.nsw.gov.au Westmead Hospital 251/45000-1570 Close Date: 20	DE DE	
			will pay less to	I BOW WICESON ENTINE.	
				as the rate charges	- , , , , , , , , , , , , , , , , , , ,
			from . 17 to .15	& have more net income	•
	\perp		And the		
			a. After reading the advertisement	544 . 22	1
			what would be her annual salary?	\$44 132 .	

		•			
	b. Helen would be allowed tax				
	deductions of \$654 per annum and	1)44 132-(654+134)			
	union fees of \$134 per annum.	= 43 344 .			
	i) Calculate her taxable income.	1) 45 34 th - 20 000 = 12 344	2		
		23 80 + 0 3 (45344-20 000) = 23 80 + 0.3 (23 344))		
	ii) Using the tax table below calculate the tax payable.	= 2380 + 7003.2 = \$9383.2	3		
Taxable	income Tax pa				
\$1-\$600	0 Nil				
\$6001-\$	20 000 17 cents for each \$1 over	er \$6000			
\$20 001-	\$20 001-\$50 000 \$2380 + 30 cents for each \$1 over \$20 000				
\$50 001-	\$60 000 \$11 380 + 42 cents for e	each \$1 over \$50 000			
\$60 001 a	The state of the s				
	ii) Calculate the Medicare levy by using the table below.	13	2		
Taxable income Medicare levy					
\$13	-\$13 807 Nil 3 808-\$14 926 20 cents for each 4 927 and over Flat 1.5% of taxal		15		
	- - - - - - - - - - - - - - - - - - -	\$43 344 × 0.015 43 344 × 0.015			
	TOTAL FOR OUTCOME NS5.1.2	G 1/12	7		
		1 72.			

17	PAS 5.2.2	Supre are having a 25% sale on all stock. You see a dress you like for \$40. a) Calculate what you pay for the dress with the discount?	a) 0.26 × 40=.10 40 - 10 = \$30. You will pay \$30.	2
		b) If you pay by cash you receive a further 5% discount. What price would you pay for the dress with this further discount?	$\frac{5\%}{100} \times 30 = 1.50$ $30 - 1.50 = 128.50$ You will pay \$28.50.	1
		OUTCOME FOR NS5.2.2) /3

REDO ANY QUESTIONS HERE. CLEARLY MARK THE QUESTION.

CHALLENGE

ONLY ATTEMPT THIS QUESTION IF YOU ARE FINISHED. It is not counted in your marks but more to encourage thinking.

Expand and simplify

