

## education

Department: Education **REPUBLIC OF SOUTH AFRICA** 

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NATIONAL SENIOR CERTIFICATE

**GRADE 10** 

## MATHEMATICS P3

**NOVEMBER 2006** 

This memorandum consists of 4 pages.

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2 NSC MEMORANDUM

	QUESTION 1	
Event	Certain	$\sqrt{answer}$
A	It is policy in South Africa	$\sqrt{\text{acceptable justification}}$ (2)
Event B	Unlikely (Learners could give another answer with acceptable justification)	$\sqrt[]{}$ answer $\sqrt[]{}$ acceptable justification (2)
Event C	50-50 Chance There is a one out of 2 possible outcomes	$\sqrt{\text{answer}}$ $\sqrt{\text{acceptable justification}}$ (2) Total: 6 marks
	QUESTION 2	Tour o muns
2.1	$\begin{array}{ c c c } \hline & & & & \\ \hline & & & & \\ \hline & & & & \\ \hline & & & &$	$\sqrt{8}$ outside $\sqrt{52}$ hip-hop $\sqrt{108}$ in intersection
	8	$\sqrt{32}$ qwaito (4)
2.2	$P(Q \text{ only}) = \frac{32}{200} = \frac{4}{25}$	$\sqrt[n]{}$ probability (2)
2.3	P(not one of the two) = $\frac{8}{200} = \frac{1}{25}$	$\sqrt[n]{}$ probability (2)
2.4	P(HH or Q) = P(HH) + P(Q) – P(HH and Q) = $\frac{160}{200} + \frac{140}{200} - \frac{108}{200}$ = $\frac{192}{200} = \frac{24}{25}$	formula substitution answer (2)
	OR	OR (3)
	P(HH or Q) = $\frac{52 + 108 + 32}{200} = \frac{192}{200} = \frac{24}{25}$	$ \begin{array}{l}   \text{formula} \\   \text{substitution} \\   \text{answer} \end{array} $
	OR	OR (3)
	P(HH or Q) = 1 – P(not one of the two) = 1 - $\frac{1}{25} = \frac{24}{25}$	$ \begin{array}{c}   \text{formula} \\   \text{substitution} \\   \text{answer} \end{array} $
	1	Total: 11
L		100000 11

	NSC MEMORANDUM	
	OUESTION 3	
3.1	$n(S) = 36$ (2 die $\therefore 6 \times 6 = 36$ possible outcomes)	$\sqrt[n]{\sqrt{1}}$ answer (2)
	sum = 4: 3 possibilitiessum < 5	
	OR	
	$1 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 3^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 2 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{*} \\ 2^{*} \\ 4 \\ 5 \\ 6 \end{array}}_{6} 3 \underbrace{\begin{array}{c} 1^{*} \\ 2^{$	
	$4 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 5 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} 6 \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \end{array}}_{6} \underbrace{\begin{array}{c} 1 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\ 2 \\$	> Possible calculations
	bold: sum will be 4*: sum will be smaller than 5	
	ORTwo way contingency table show the sample space1234561 $1+1*$ $2+1*$ $3+1*$ $4+1$ $5+1$ $6+1$ 2 $2+1*$ $2+2*$ $3+2$ $4+2$ $5+2$ $6+2$ 3 $3+1*$ $2+3$ $3+3$ $4+3$ $5+3$ $6+3$ 4 $4+1$ $2+4$ $3+4$ $4+4$ $5+4$ $6+4$ 5 $5+1$ $2+5$ $3+5$ $4+5$ $5+5$ $6+5$ 6 $6+1$ $2+6$ $3+6$ $4+6$ $5+6$ $6+6$ bold: sum will be 4*: sum will be smaller than 5	
3.2	$P(sum = 4) = \frac{3}{36} = \frac{1}{12}$	calculation 3 possibilities probability (2)
3.3	$P(sum < 5) = \frac{6}{36} = \frac{1}{6}$	$\sqrt[]{/} \sqrt{\text{calculation 6 possibilities}} \\ \sqrt[]{} \text{ probability} $ (3)

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Total: 7 marks

OUESTION 4						
4.1	Graph B The employer wants to create the impression that the salary increase over the period was quite big.	$\sqrt{\text{graph}}$ $\sqrt{\sqrt{\text{explanation}}}$	(3)			
4.2	Graph A The workers union wants to show that the increase in salaries over the period is minimal.	$\sqrt{\text{graph}} \sqrt{\sqrt{\text{explanation}}}$	(3)			
4.3	The scales used on the y-axis differ. In Graph A: 1 unit = R 500 In Graph B: 1 unit = R 50	$\sqrt{\sqrt{2}}$ explanation $\sqrt{2}$ conclusion	(3)			
	Total: 9 marks					
5 1	QUESTION 5	a f =				
5.1	$F = \{1; 3; 5; 15\}$ $M = \{2; 4; 6; 8; 10; 12; 14; 16\}$ $U = \{1; 3; 5; 7; 9; 11; 13; 15\}$	1000000000000000000000000000000000000	(3)			
	P(F and U) = P(F) . P(U) = $\frac{4}{16} \times \frac{8}{16} = \frac{32}{256} = \frac{1}{8}$					
5.2	P(M or U) = P(M) + P(U) – P(M and U) = $\frac{8}{16} + \frac{8}{16} - \frac{0}{16} = \frac{16}{16} = 1$	$\sqrt[]{formula} \\ \sqrt{\frac{8}{16} + \frac{8}{16}} \\ \sqrt{\frac{0}{16}} \\ \sqrt{answer} $	(4)			
	Total: 7 marks					
6.1	Yes James's definition is not sufficient as it could be referring to a rhombus or a square. George's definition is not sufficient since it could be referring to a square or a rectangle.	answer yes explanation- James explanation-George	(3)			
6.2.1	A kite	√kite	(1)			
6.2.2	A kite is a quadrilateral with two distinct pairs of adjacent sides equal.	$\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{\sqrt{$	(3)			
6.3	No Anna's definition is giving a kite while Raoul's definition does not necessarily make a kite.	$\sqrt{no}$ no $\sqrt{explanation}$	(2)			
		Total: 11	l marks			

**TOTAL: 50 marks**