



education

Department:
Education
REPUBLIC OF SOUTH AFRICA

**NATIONAL
SENIOR CERTIFICATE**

GRADE 10

MATHEMATICS P3

NOVEMBER 2006

This memorandum consists of 4 pages.

QUESTION 1		
Event A	Certain It is policy in South Africa	√ answer √ acceptable justification (2)
Event B	Unlikely (Learners could give another answer with acceptable justification)	√ answer √ acceptable justification (2)
Event C	50-50 Chance There is a one out of 2 possible outcomes	√ answer √ acceptable justification (2)
Total: 6 marks		
QUESTION 2		
2.1		√ 8 outside √ 52 hip-hop √ 108 in intersection √ 32 qwaito (4)
2.2	$P(Q \text{ only}) = \frac{32}{200} = \frac{4}{25}$	√√ probability (2)
2.3	$P(\text{not one of the two}) = \frac{8}{200} = \frac{1}{25}$	√√ probability (2)
2.4	$ \begin{aligned} P(\text{HH or Q}) &= P(\text{HH}) + P(\text{Q}) - P(\text{HH and Q}) \\ &= \frac{160}{200} + \frac{140}{200} - \frac{108}{200} \\ &= \frac{192}{200} = \frac{24}{25} \end{aligned} $ <p style="text-align: center;">OR</p> $P(\text{HH or Q}) = \frac{52 + 108 + 32}{200} = \frac{192}{200} = \frac{24}{25}$ <p style="text-align: center;">OR</p> $P(\text{HH or Q}) = 1 - P(\text{not one of the two}) = 1 - \frac{1}{25} = \frac{24}{25}$	√ formula √ substitution √ answer (3) <p style="text-align: center;">OR</p> √ formula √ substitution √ answer (3) <p style="text-align: center;">OR</p> √ formula √ substitution √ answer (3)
Total: 11		

QUESTION 3

3.1	<p>$n(S) = 36$ (2 die $\therefore 6 \times 6 = 36$ possible outcomes)</p> <p>sum = 4 : 3 possibilities sum < 5 : 6 possibilities</p> <p style="text-align: center;">OR</p> <div style="display: flex; justify-content: space-around; align-items: center;"> </div> <p>bold : sum will be 4 * : sum will be smaller than 5</p> <p style="text-align: center;">OR</p> <p>Two way contingency table show the sample space</p> <table border="1" style="margin-left: auto; margin-right: auto; border-collapse: collapse; text-align: center;"> <thead> <tr> <th></th> <th>1</th> <th>2</th> <th>3</th> <th>4</th> <th>5</th> <th>6</th> </tr> </thead> <tbody> <tr> <th>1</th> <td>1+1*</td> <td>2+1*</td> <td>3+1*</td> <td>4+1</td> <td>5+1</td> <td>6+1</td> </tr> <tr> <th>2</th> <td>2+1*</td> <td>2+2*</td> <td>3+2</td> <td>4+2</td> <td>5+2</td> <td>6+2</td> </tr> <tr> <th>3</th> <td>3+1*</td> <td>2+3</td> <td>3+3</td> <td>4+3</td> <td>5+3</td> <td>6+3</td> </tr> <tr> <th>4</th> <td>4+1</td> <td>2+4</td> <td>3+4</td> <td>4+4</td> <td>5+4</td> <td>6+4</td> </tr> <tr> <th>5</th> <td>5+1</td> <td>2+5</td> <td>3+5</td> <td>4+5</td> <td>5+5</td> <td>6+5</td> </tr> <tr> <th>6</th> <td>6+1</td> <td>2+6</td> <td>3+6</td> <td>4+6</td> <td>5+6</td> <td>6+6</td> </tr> </tbody> </table> <p>bold : sum will be 4 * : sum will be smaller than 5</p>		1	2	3	4	5	6	1	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	<p>$\sqrt{\sqrt{\quad}}$ answer (2)</p> <div style="border-left: 1px solid black; border-right: 1px solid black; border-bottom: 1px solid black; padding: 10px; margin: 10px 0;"> <p style="text-align: center;">Possible calculations</p> </div>
	1	2	3	4	5	6																																													
1	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																																													
3.2	$P(\text{sum} = 4) = \frac{3}{36} = \frac{1}{12}$	<p>$\sqrt{\quad}$ calculation 3 possibilities $\sqrt{\quad}$ probability (2)</p>																																																	
3.3	$P(\text{sum} < 5) = \frac{6}{36} = \frac{1}{6}$	<p>$\sqrt{\sqrt{\quad}}$ calculation 6 possibilities $\sqrt{\quad}$ probability (3)</p>																																																	
Total: 7 marks																																																			

QUESTION 4		
4.1	Graph B The employer wants to create the impression that the salary increase over the period was quite big.	√ graph √√ explanation (3)
4.2	Graph A The workers union wants to show that the increase in salaries over the period is minimal.	√ graph √√ 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	√√ explanation √ conclusion (3)
Total: 9 marks		
QUESTION 5		
5.1	$F = \{1; 3; 5; 15\}$ $M = \{2; 4; 6; 8; 10; 12; 14; 16\}$ $U = \{1; 3; 5; 7; 9; 11; 13; 15\}$ $P(F \text{ and } U) = P(F) \cdot P(U) = \frac{4}{16} \times \frac{8}{16} = \frac{32}{256} = \frac{1}{8}$	√ formula √ substitution √ answer (3)
5.2	$P(M \text{ or } U) = P(M) + P(U) - P(M \text{ and } U)$ $= \frac{8}{16} + \frac{8}{16} - \frac{0}{16} = \frac{16}{16} = 1$	√ formula √ $\frac{8}{16} + \frac{8}{16}$ √ $\frac{0}{16}$ √ answer (4)
Total: 7 marks		
QUESTION 6		
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.	√√√ definition (3)
6.3	No Anna's definition is giving a kite while Raoul's definition does not necessarily make a kite.	√ no √ explanation (2)
Total: 11 marks		

TOTAL: 50 marks