

Province of the

**EASTERN CAPE**

EDUCATION

**SENIOR PHASE**

**GRADE 9**

**NOVEMBER 2010**

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| **MATHEMATICS**  **MARKING GUIDELINE** |

**MARKS: 100**

**TIME: 2 hours**

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| This marking guideline consists of 6 pages. |

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| **QUESTION 1** | | | | | | |  |
|  | |  | |  |  |  |  |
| 1.1 | | A√ | | (1) | 1.6 | D√ | (1) |
| 1.2 | | D√ | | (1) | 1.7 | B√ | (1) |
| 1.3 | | C√ | | (1) | 1.8 | D√ | (1) |
| 1.4 | | A√ | | (1) | 1.9 | C√ | (1) |
| 1.5 | | B√ | | (1) | 1.10 | B√ | (1) |
|  | |  | | | | | **[10]** |
| **QUESTION 2** | | | | | | |  |
|  | | | | | | |  |
| 2.1 | 2.1.1 | | Betty’s Bargains:  R12 999x0,85= R11 049,15 √ or  R12 999- 0,15 x R 12 999  = R12 999-R1949,85 = R 11049,15  Serious Sister’s Specials  R14 999x 0,7= R10 499,30 √ or  R14 999-0,3x R14 999  = R14 999-R4 4 99,70= R10 499,30  **She should buy her TV from Serious Sister’s Specials**√ | | | | (3) |
|  |  | |  | | | |  |
|  | 2.1.2 | | R10 499,30 = $1 428,48 √  7,35 | | | | (1) |
|  |  | |  | | | |  |
| 2.2 | 2.2.1 | | 5xR42480,00 √  12  =R17 700,00√ | | | | (2) |
|  |  | |  | | | |  |
|  | 2.2.2 | | Interest for the 1st year = R17 700,00x 6,5  100  =R1 150,50√  Interest for the 2nd year =R18 850,50x6,5  100  = R 1 225.28√  Amount after 2 years = R17 700,00+R1 150,50+R1 225,28  = R 20 075,78√ | | | | (3) |
|  |  | |  | | | |  |
| 2.3 | x + y = 20  x2 + y2 = 208  x = 8 √; y = 12√ (Using trial and error by substitution √) | | | | | | (3) |
|  |  | |  | | | | **[12]** |
|  |  | |  | | | |  |
| **QUESTION 3** | | | | | | |  |
|  |  | |  | | | |  |
| 3.1 | 3.1.1 | | *3(x-2)=5x-(x+2)*  3*x-6 = 5x-x-2*√  *3x-6=4x-2*√  *x=-4*√ | | | | (3) |
|  |  | |  | | | |  |
|  | 3.1.2 | | (  12q-3+x =12q15 √  -3+*x* =15 √  *x* = 18 √ | | | | (3) |

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|  | 3.1.3 | 2*x*x12 – 12(*x*-1)=2x12  3 4  8*x* -3(*x*-1) =24 √  8*x* -3*x* +3 = 24 √  5*x* =21  *x* = 21/5 =41/5 √ | | (3) |
|  |  |  | |  |
| 3.2 | 3.2.1 | =5*x*-3 *x* 2-12*x*-(2*x* 2-5 *x*-3) √  =5 *x*-3 *x* 2-12 *x* -2*x* 2+5*x*+3 √  = -5*x* 2-2*x*+3√ | | (3) |
|  |  |  | |  |
|  | 3.2.2 | = (x-y)(x+y) x 2( 2a+3b) √√  (2a-3b)(2a+3b) x-y  =2(x+y) √  2a-3b | | (3) |
|  |  |  | |  |
| 3.3 | =7x2y(5xy3-2+3x2y)√√ | | | (2) |
|  |  |  | | **[17]** |
| **QUESTION 4** | | | |  |
|  |  |  | |  |
| 4.1 | 4.1.1 | 37; 50 √ √ | | (2) |
|  |  |  | |  |
|  | 4.1.2 | *12+1; 22+1; 32+1; 42+1 ...n2+1*) √√ | | (2) |
|  |  |  | |  |
|  | 4.1.3 | 202+1 =401√ | | (1) |
|  |  |  | |  |
| 4.2 | 4.2.1 | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | x | 1 | 2 | 3 | 4 | 5 | | y | -2 | 0 | 2 | 4 | 6 |   y=2x-4  or use any other relevant method | 2 marks for correct table  2 marks for the equation (4) | |
|  |  |  | |  |
| 4.3 | 4.3.1 | 9 = 5 √  h 2  5h =18  h = 18/5 =3,6√ | | (2) |
|  |  |  | | **[11]** |
| **QUESTION 5** | | | |  |
|  |  |  | |  |
| 5.1 | 5.1.1 | Area of a rectangle = lxb= 4x x l = 6x2+4/3 x √  Therefore l= 6x2+4/3 x x 3√  4x 3  = 18 x2+4x√  12x  =3/2 x +1/3√ | | (4) |
|  |  |  | |  |
|  | 5.1.2 | Perimeter of a rectangle = 2(*l*+b)  = 2(3/2 *x +1/3+*4*x*) √  = 2(11/2 *x+1/3*)  = 11*x+* 2/3 √ | | (2) |

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| 5.2 | 5.2.1 | In ΔDBE and ΔCFE  DB=CF (given) √  ∠B = ∠C (alternate angles) √  ∠BED =∠CEF (Vertically opposite angles) √  ∴ ΔDBE ≡ ΔCFE (A, A, S) √ | (4) |
|  |  |  |  |
|  | 5.2.2 | ∠BED=∠FEC = 65° (vert. opp. angles) √  ∠EBD=∠ECF = 52° (alt. angles) √  ∠CFE= 180°-(65°+52°) (sum of angles of a triangle)  ∠CEF =63º√ | (3) |
|  |  |  |  |
| 5.3 | 5.3.1 | *x*+35º+3*x-15º* = 180º (co-interior angles) √  4*x*+20º = 180º√  *4x=*160º√  *x*= 40º√ | (4) |
|  |  |  |  |
|  | 5.3.2 | ∠CPL = 3*x*-15º  = 3x40º-15º  = 120º-15º  = 105º √  ∴ ∠*KPC = 75*º (angles on a straight line) √ | (2) |
|  |  |  | **[19]** |
| **QUESTION 6** | | |  |
|  |  |  |  |
| 6.1 | 6.1.1 | √  Assume this happens *t* hours after takeoff: (they have both flown for *t* hours)  Then:  √√  Or any other method is acceptable | (3) |
|  |  |  |  |
|  | 6.1.2 | √  √√  Or any other method is acceptable | (3) |
|  |  |  |  |
| 6.2 | 6.2.1 | (*x* + 2)2 = *x*2 + 42  √  *x*2 + 4*x* + 4 = *x*2 + 16  *x*2 - *x*2+ 4*x* = 16 – 4√  4*x* = 12  *x* = 3 m  Height of the ladder is 3 m√ | (3) |

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|  | 6.2.2 | *x* + 2 = 3 + 2 = 5√ | | | (1) |
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| 6.3 | 6.3.1 |  | | 1 mark for reflection (1) | |
|  |  |  | | |  |
|  | 6.3.2 | A’(-4;-2)  B’ (-2; -5)  C’ (-2; -2) | 1 mark for all three correct coordinates (1) | | |
|  |  |  | | |  |
|  | 6.3.3 | See QUESTION 6.3.1 for construction  Trapezium√ - only one pair of opposite sides parallel √ | | | (2) |
|  |  |  | | | **[14]** |
| **QUESTION 7** | | | | |  |
|  | | | | |  |
| 7.1 | 7.1.1 | 1+3+6+6+9+11+13+13+13+35+57 √  11  =167  11  =15,2√ | | | (2) |
|  |  |  | | |  |
|  | 7.1.2 | 1;3;6;6;9;11;13;13;13;35;57  Median = 11 √ | | | (1) |
|  |  |  | | |  |
|  | 7.1.3 | Mode = 13√ | | | (1) |
|  |  |  | | |  |
|  | 7.1.4 | Range = 57-1√  = 56 | | | (1) |
|  |  |  | | |  |
|  | 7.1.5 | |  |  | | --- | --- | | Stem | Leaf | | 0  1  3  5  √ | 1 3 6 9  1 3 3 3  5  7  √ | | | | (2) |
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| 7.2 | 7.2.1 | √ √ √ | 1 mark for each correct column in the tree diagram  (3) | |
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|  | 7.2.2 | P(H and B) = √√ | | (2) |
|  |  |  | |  |
| 7.3 | 7.3.1 | 10% of 360º= 36º√  Therefore angle for the fat= 360º-(184º +93º +36º +35º)  = 360º-348º  = 12º√ | | (2) |
|  |  |  | |  |
|  | 7.3.2 | Amount of fibre in the cereal =93º  360º  =31 √  120  or 0,26 | | (1) |
|  |  |  | |  |
|  | 7.3.3 | Mass of protein = 35º x 45g √  360º  = 35 g √  8  or 4,38g | | (2) |
|  |  |  | | **[17]** |
|  |  |  | |  |
|  |  | **TOTAL:** | | **100** |