basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

ANNUAL NATIONAL ASSESSMENTS 2015
GRADE 7 MATHEMATICS TEST
MEMORANDUM

MARKS: 100

This memorandum consists of 5 pages.

Important Information

- This is a marking guideline. In instances where learners have used different but mathematically correct strategies to solve the problems they (learners) should be credited.
- Unless stated otherwise, learners who give a correct answer only, should be awarded full marks.
- Underline errors committed by learners and apply Consistent Accuracy (CA) marking.

KEY	
M	Method mark
CA	Consistent Accuracy mark
A	Accuracy mark

CA Example	
$2^3 \times 1^4 = 8$ ✓ $\times 1$ ✓**A** $= 8$ ✓**CA** If $2^3 \times 1^4 = \underline{6} \times \underline{4}$ $= 24$ ✓**CA**	8: 1 mark 1: 1 mark Answer: 1 mark

QUESTION 1

1.1	B ✓	**1.2**	C ✓	**1.3**	C ✓	**1.4**	A ✓	**1.5**	B ✓
1.6	C ✓	**1.7**	B ✓	**1.8**	B ✓	**1.9**	A ✓	**1.10**	D ✓

10

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QUESTION 2

2.1.1

$$\begin{array}{r} 1\,643\,884 \\ \underline{+\ 262\,206} \\ 1\,906\,090 \end{array}$$

✓ ✓**A**

090: 1 mark
1 906: 1 mark — 2

2.1.2

$$31\overline{)6\,517}$$

210 rem 7 ✓**CA**

$-\ 6\,200$ ✓**M** $\quad 200 \times 31 = 6\,200$

317

$-\ 310$ ✓**M** $\quad 10 \times 31 = 310$

7 ✓**CA**

or

$2\,10$ rem 7 ✓✓✓**A**

$31\overline{)6\,5^{3}17}$ ✓**M**

210: 1 mark
6200: 1 mark
310: 1 mark
rem 7: 1 mark
or
210 rem 7: 4 marks
(if method is shown)
210,225…: 1 mark
ANSWER ONLY: 1 mark — 4

2.1.3	315×236 $\begin{array}{r} 315 \\ \times\ 236 \\ \hline 1\,890 \\ 9\,450 \\ +\,63\,000 \\ \hline 74\,340 \end{array}$ ✓**M** ✓**M** ✓**M** ✓**CA** $315 \times 6 = 1\,890$ $315 \times 30 = 9\,450$ $315 \times 200 = 63\,000$ or $\begin{array}{r} 315 \\ \times\ 236 \\ \hline 63\,000 \\ 9\,450 \\ +\,1\,890 \\ \hline 74\,340 \end{array}$ ✓**M** ✓**M** ✓**M** ✓**CA**	$1\,890$: 1 mark $9\,450$: 1 mark $63\,000$: 1 mark Answer $74\,340$: 1 mark	4
2.1.4	$2^3 \times 1^4 = 8$ ✓ $\times 1$ ✓**A** $= 8$ ✓**CA**	8: 1 mark 1: 1 mark Answer: 1 mark	3
2.1.5	$\sqrt{144} + 6^2$ $= 12$ ✓ $+ 36$ ✓**A** $= 48$ ✓**CA**	12: 1 mark 36: 1 mark Answer: 1 mark	3
2.1.6	$\frac{3}{5} \times \frac{7}{6}$ $= \frac{\cancel{3}^{1}}{5}$ ✓ $\times \frac{7}{\cancel{6}^{2}}$ ✓**M** $= \frac{7}{10}$ ✓**CA** or $\frac{3}{5} \times \frac{7}{6}$ $= \frac{\cancel{21}^{7}}{\cancel{30}^{10}}$ ✓✓**M** $= \frac{7}{10}$ ✓**CA**	$\frac{1}{5}$: 1 mark $\frac{7}{2}$: 1 mark Answer: 1 mark or 21 1 mark 30: 1 mark Answer: 1 mark	3
2.1.7	$\frac{0{,}012}{4} = 0{,}003$ ✓**A**	Answer: 1 mark	1
2.1.8	$100 - 12 \div (8 + 4)$ $= 100 - 12 \div 12$ ✓**M** or $100 - (12 \div 12)$ ✓**M** $= 100 - 1$ ✓**M** $= 99$ ✓**CA**	12: 1 mark 1: 1 mark Answer: 1 mark	3
2.2	$1{,}6 = \frac{16}{10}$ ✓**M** $= \frac{8}{5}$ ✓**A**	$\frac{16}{10}$: 1 mark Answer: 1 mark	2
2.3	No. of boys : No. of girls $= 2 : 3$ Total number of equal parts $= 2 + 3 = 5$ ✓**M** No of boys $= \frac{2}{5} \times \frac{25}{1}$ ✓**M** $= 10$ ✓**CA** or No of boys : No of girls : Total = 2 : 3 : 5 ✓**M** ∴ No of boys $= \frac{2}{5} \times \frac{25}{1}$ ✓**M** $= 10$ ✓**A**	5: 1 mark $\frac{2}{5} \times \frac{25}{1}$: 1 mark Answer: 1 mark	3

2.4	10 % of $R15{,}00$ $= \frac{\cancel{10}^{1}}{\cancel{100}^{10}}$ ✓ $\times \frac{R15{,}00}{1}$ ✓M $= R1{,}50$ ✓CA or 10 % of $R15{,}00$ $= \frac{1}{10}$ ✓ $\times \frac{R15{,}00}{1}$ ✓M $= R1{,}50$ ✓CA	$\frac{10}{100}$:1 mark $\frac{10}{100} \times \frac{R15{,}00}{1}$: 1 mark Answer: 1 mark or $\frac{1}{10}$: 1 mark $\frac{1}{10} \times \frac{R15{,}00}{1}$: 1 mark Answer: 1 mark	3
2.5	Distance travelled $= 80\ km/h \times 4{,}5\ h$ ✓✓M $= 360\ km$ ✓CA or Distance travelled $= 80\ km/h \times \frac{9}{2} h$ ✓✓M $= 360\ km$ ✓CA or In $1\ h \rightarrow 80\ km$ In $\frac{1}{2}\ h \rightarrow 40\ km$ ✓M In $4\ h \rightarrow 320\ km$ ✓M $\therefore$ In $4\frac{1}{2}\ h \rightarrow 360\ km$ ✓CA	$80\ km/h \times 4{,}5\ h$: 2 marks Answer: 1 mark or $80\ km/h \times \frac{9}{2} h$: 2 marks Answer: 1 mark or $\frac{1}{2}\ h - 40\ km$: 1 mark $4\ h - 320\ km$: 1 mark Answer: 1 mark	3
			[34]
QUESTION 3			
3.1.1	1 ; 4 ; 9 ; <u>16</u> ✓ ; 25 ; <u>36</u> ✓A	16: 1 mark 36: 1 mark	2
3.1.2	Square numbers ✓A	Answer: 1 mark	1
3.2	<table><tr><td>No of polygons</td><td>4</td><td>n</td></tr><tr><td>No. of sides</td><td>29 ✓A</td><td>$7n$ ✓ $+1$ ✓A</td></tr></table>	29: 1 mark $7\times n$ or $7n$: 1 mark $+1$: 1 mark	3
3.3	p : 7 ; 11 ; (3.3.2) <u>12</u> ✓**A** ; 20 $t = 2 \times p - 3$ t : 11 ; (3.3.1) <u>19</u> ✓**A** ; 21 ; (3.3.3) <u>37</u> ✓**A**	19: 1 mark 12: 1 mark 37: 1 mark	3
3.4	$c^3 + 12 = (3)^3 + 12$ ✓M $= 27 + 12$ ✓A $= 39$ ✓CA	Substitution: 1 mark 27: 1 mark Answer: 1 mark	3
3.5.1	$k = 27$ ✓A	$k = 27$: 1 mark	1

3.5.2	$y = 30$ ✓A	$y = 30$: 1 mark	1
3.6.1	$x + 5$ ✓A	Answer: 1 mark	1
3.6.2	$2 \times p$ ✓ $- 8$ ✓ $= 12$ ✓A or $2(p)$ ✓ $- 8$ ✓ $= 12$ ✓A or $2p$ ✓ $- 8$ ✓ $= 12$ ✓A	$2 \times p$ or $2(p)$ or $2p$: 1 mark -8: 1 mark Answer: 1 mark	3
3.7.1	50 ✓A	50: 1 mark	1
3.7.2	Tuesday and Wednesday ✓A	Tue and Wed: 1 mark Only one day: no mark	1
3.7.3	Difference $= 50 - 40$ ✓M $= 10$ ✓A	$50 - 40$: 1 mark 10: 1 mark ANSWER ONLY: 2 marks	2
			[22]
QUESTION 4			
4.1	Equilateral Δ: C ✓A; Right -angled Δ: B ✓A; Obtuse-angled Δ: D ✓A	C: 1 mark B: 1 mark D: 1 mark	3
4.2.1	Acute angle ✓A	Answer: 1mark	1
4.2.2	Obtuse angle ✓A	Answer: 1mark	1
4.2.3	Right angle ✓A	Answer: 1mark	1
4.2.4	BD and AC ✓A or BD and DC ✓A or BD and AD ✓A or BD ⊥ AC ✓A or BD ⊥ DC ✓A or BD ⊥ AD ✓A	Answer: 1mark (letters in any order)	1
4.3.1	PQ is a diameter ✓A	Answer: 1 mark	1
4.3.2	TM is a radius ✓A	Answer: 1 mark	1
4.3.3	PS is a chord ✓A	Answer: 1 mark	1
4.4.1	Fig A is a parallelogram ✓A	Answer: 1 mark	1
4.4.2	Fig B is a kite ✓A	Answer: 1 mark	1
4.4.3	Fig C is a heptagon or septagon ✓A	Answer: 1 mark	1
4.4.4	Fig D is a pentagon ✓A	Answer: 1 mark	1
			[14]

QUESTION 5			
5.1.1	$QR = PR = 23\ mm$ ✓A	Answer: 1 mark	1
5.1.2	$\hat{P} = \hat{Q} = 60°$ ✓A	Answer: 1 mark	1
5.2.1	DF = 4 cm ✓A	Answer: 1 mark	1
5.2.2	$\hat{F} = 40°$ ✓A	Answer: 1 mark	1
			[4]
QUESTION 6			
6.1.1	D ✓A	Answer: 1 mark	1
6.1.2	A ✓A (D can also be accepted)	Answer: 1 mark	1
6.2.1	Group 1 - Congruent ✓A (Similar can also be accepted)	Answer: 1 mark	1
6.2.2	Group 2 - Similar ✓A	Answer: 1 mark	1
			[4]
QUESTION 7			
7.1	$P = 2l + 2b$ ✓M or $P = 2(l + b)$ ✓M $= 22\ cm + 10\ cm$ ✓M $= 2(11 + 5)cm$ ✓M $= 32\ cm$ ✓CA $= 32\ cm$ ✓CA	Formula: 1 mark substitution: 1 mark Answer: 1 mark	3
7.2	S-A of cube = $6(l)^2$ ✓A or S-A of cube $= 6 \times l^2$ ✓A	Answer: 1 mark	1
7.3	Volume of rectangular prism $= l \times b \times h$ ✓M $= 5\ cm \times 3\ cm \times 10\ cm$ ✓M $= 150\ cm^3$ ✓CA	Formula: 1 mark substitution: 1 mark Answer: 1 mark	3
			[7]
QUESTION 8			
8.1	Daughter's age = mother's age ÷ 2 $= 64 \div 2$ years ✓M $= 32$ years ✓A	$64 \div 2$: 1 mark Answer: 1 mark ANSWER ONLY: 2 mark	2
8.2	$5 \times 2 = 10$ ✓A Difference $= 5 - 2$ ✓A $= 3$ ✓A	5: 1 mark 2: 1 mark Answer: 1 mark	3
			[5]
		TOTAL:	**100**