basic education
Department:
Basic Education
REPUBLIC OF SOUTH AFRICA

ANNUAL NATIONAL ASSESSMENT
2014
GRADE 9 MATHEMATICS
EXEMPLAR QUESTIONS
MEMORANDUM

KEY	
M	Method mark
CA	Consistent Accuracy mark
A	Accuracy mark

1. MULTIPLE-CHOICE QUESTIONS

1.	1.1	**C**	1.2	**C**	1.3	**B**	1.4	**C**	1.5	**B**	Give 1 mark for each correct answer.	**[10]**
	1.6	**C**	1.7	**D**	1.8	**C**	1.9	**D**	1.10	**B**		

2. NUMBERS, OPERATIONS AND RELATIONS

2.1.1	0,0067 ✓ **A**	1 mark	(1)
2.1.2	$3{,}56 \times 10^{-6}$ ✓ **A**	1 mark	(1)
2.1.3	2,7, $2\sqrt{2}$, 8 ✓ **A because** $2\sqrt{2} \approx 2{,}83$.	1 mark	(1)
2.1.4	$-3\sqrt{3}$, -5,25 , -16 ✓ **A because** $-3\sqrt{3} \approx -5{,}20$	1 mark	(1)
2.1.5	$9 < 13 < 16$ $3 < \sqrt{13} < 4$✓ **A**	Answer: 1 mark	(1)
2.2.1	$0{,}125 \div \sqrt{25}$ $= 0{,}125 \div 5$ ✓ **M** $= 0{,}025$ ✓ **CA**	5: 1 mark Answer: 1 mark	(2)
2.2.2	$\left(2\frac{1}{2}\right)^2 + (0{,}5)^2$ $= \frac{25}{4} + 0{,}25$ ✓ **M** $= \frac{25}{4} + \frac{1}{4}$ ✓ **M** $= \frac{26}{4}$ $= 6\frac{1}{2}$✓ **A**	$\frac{25}{4}$: 1 mark $\frac{1}{4}$: 1 mark Answer: 1 mark	(3)
	or		
	$6{,}25 + 0{,}25$✓ **M** $= 6{,}5$✓✓ **A**	6,25: 1 mark Answer: 2 marks	(3)
2.2.3	$\left(\sqrt{169} + 3 \times 5\right) \div 2$✓ **M** $= (13 + 15) \div 2$✓ **A** $= 14$✓ **CA**	$\left(\sqrt{169} + 3 \times 5\right) \div 2$: 1 mark 13 + 15: 1 mark Answer: 1 mark	(3)
2.2.4	$\sqrt[3]{10^3} \times \sqrt{0{,}01}$ $= 10 \times 0{,}1$✓✓ **M** $= 1$✓ **CA**	10: 1 mark 0,1: 1 mark Answer: 1 mark	(3)

2.3	96:120✓**M** = 8:10 = 4:5✓**A**	Ratio: 1 mark Answer:1 mark	(2)
2.4	$\frac{250}{50}:\frac{150}{50}:\frac{100}{50}$ ✓ **M** = 5: 3: 2 ✓**A**	Simplifying : 1 mark Answer: 1 mark	(2)
2.5	$\frac{5}{3}:\frac{8}{3}$ ✓ **M** = 5: 8 ✓**A**	$\frac{5}{3} \div \frac{8}{3}$: 1 mark Answer: 1 mark	(2)
2.6	5: 3: 4: **12** First mass = $\frac{5}{12} \times 240\ g = 100\ g$✓ **A** Second mass = $\frac{3}{12} \times 240\ g = 60\ g$✓ **A** Third mass = $\frac{4}{12} \times 240\ g = 80\ g$ ✓ **A** **or** Third mass = $240\ g - (100\ g + 60\ g) = 80\ g$✓**CA**	Answer: 1 mark each	(3)
2.7	Decreased amount = $\frac{2}{5} \times R1\,250$✓ **M** = $R500$✓**A**	$\frac{2}{5}$: 1 mark Answer: 1 mark	(2)
2.8	Increased number = $\frac{5}{2} \times 280$✓ **M** = 700✓**A**	$\frac{5}{2}$: 1 mark Answer: 1 mark	(2)
2.9	$P.n.i = SI$ ✓ **M** $3\,000(n)(0{,}8) = 960$ ✓ **M** $n = 4$ ✓ **A** **or** $A = P(1 + ni)$✓ **M** $3\,960 = 3\,000(1 + 0{,}08n)$✓ **M** $1{,}32 = 1 + 0{,}08n$ $0{,}32 = 0{,}08n$ $n = 4$✓**A**	Formula/substitution: 2 marks Answer: 1 mark	(3)
2.10	A $= P(1 + i)^n$ ✓ **M** A $= R6\,500(1 + 0{,}075)^3$✓**M** A = R8 074.93✓ **A** Interest=A-P = R1 574,93✓ **CA** **or** Year 1: $R6\,500 \times 7{,}5\% = R487{,}50$✓ **M** Year 2: $R6\,987{,}50 \times 7{,}5\% = R524{,}06$✓ **M** Year 3: $R7\,511{,}56 \times 7{,}5\% = R563{,}37$✓ **M** Total interest is R1 574,93✓ **M**	Formula/substitution: 2 marks Calculation: 1 mark Answer: 1 mark	(4)
2.11	$A = P(1 + i)^n$ ✓ **M** A = R10 000$(1 + 0,1)^3$✓✓**M** = R13 310,00✓ **A** **or** Year 1: $R10\,000 \times 10\% = R1\,000{,}00$✓**M** Year 2: $R11\,000 \times 10\% = R1\,100{,}00$✓**M** Year 3: $R12\,100 \times 10\% = R1\,210{,}00$ ✓**M** The amount = R10 000 + R3 310,00 =R13 310,00 ✓**CA**	Formula/substitution: 3 marks Answer: 1 mark	(4)

2.12	**Speed (km/h)** | **Time (h)** 80 | 3 50 | x $50x = 80(3)$ ✓✓**M** (indirect proportion) $x = \frac{80(3)}{50}$ ✓**A** $= 4{,}8\ h$ ✓**CA** **or** $s = \frac{d}{t}$ $d = 80\frac{km}{h} \times 3\ h$ $d = 240\ km$ ✓✓**M** $t = \frac{d}{s}$ $t = \frac{240\ km}{50\ km/h}$ = 4,8 hours or 4 hours 48 min ✓✓**CA**	Formula/substitution: 2 marks x: 1 mark Answer: 1 mark	(4)
2.13	Length in m | 3,5 | x Shadow in m | 5,2 | 29,2 $\frac{x}{29,2} = \frac{3,5}{5,2}$ ✓ ✓**M** (direct proportion) $x = \frac{3,5 \times 29,2}{5,2}$ ✓**M** $= 19{,}65\ m$ ✓**A**	Formula/substitution: 2 marks x: 1 mark Answer: 1 mark	(4)

3. PATTERNS, FUNCTIONS AND ALGEBRA

3.1.1	$(2x)^2 + 3x^2$ $= 4x^2 + 3x^2$ ✓**M** $= 7x^2$ ✓ **CA**	$4x^2$: 1 mark Answer: 1 mark	(2)
3.1.2	$(a^2\ b^3)^2 . ab^2 - (ab)^5$ $= a^4\ b^6 ab^2 - a^5b^5$ ✓✓**M** $= a^5b^8 - a^5b^5$ ✓**M** $= a^5b^5(b^3 - 1)$ ✓**A**	$a^4\ b^6 ab^2$: 1 mark a^5b^5: 1 mark Applying exponential laws: 1 mark Answer: 1 mark	(4)
3.1.3	$\frac{5a^2b}{3ab} \times \frac{27}{20a^3b}$ ✓ **M** $= \frac{9}{4a^2b}$ ✓✓ **A**	Reciprocal: 1 mark 9: 1 mark $4a^2b$: 1 mark	(3)
3.1.4	$\frac{2x^{-2} \times x^3}{2^2x^2}$ ✓**M** $= \frac{x}{2}$ or $\frac{1}{2}x$ ✓**A**	Applying exponential laws: 1 mark Answer: 1 mark	(2)
3.1.5	$\frac{4x^{-2}}{(4x)^{-2}}$ $= \frac{4x^{-2}}{4^{-2}x^{-2}}$ ✓**M** $= 4^3$ ✓**CA** $= 64$ ✓**A**	$4^{-2}x^{-2}$: 1 mark 4^3: 1 mark Answer: 1 mark	(3)

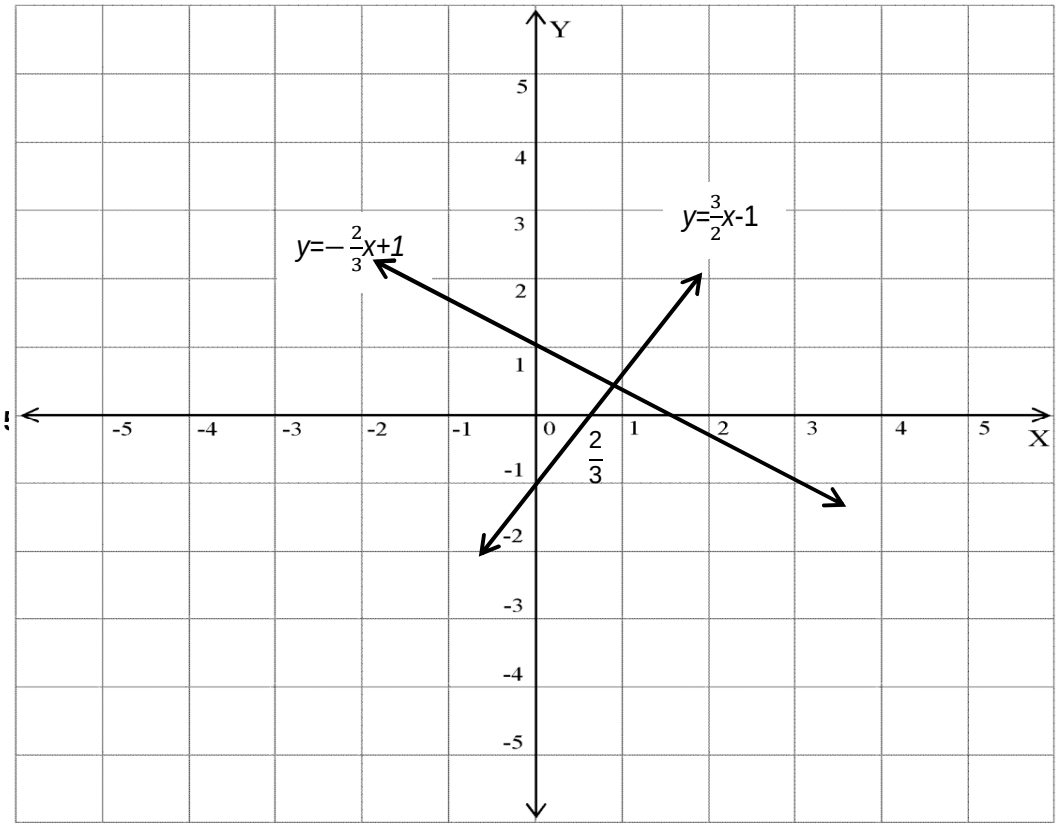
3.1.6	$\frac{x(x+2)}{x(x^2-2)} \times \frac{x-2}{(x+2)(x-2)}$ ✓✓✓**M** $= \frac{1}{x^2-2}$ ✓**A**	$x(x+2)$: 1 mark $x(x^2-2)$: 1 mark $(x+2)(x-2)$:1 mark Answer: 1 mark	(4)
3.1.7	$\frac{x-2}{2x} - \frac{x-3}{3x}$ $= \frac{\frac{3(x-2)-2(x-3)}{6x}}{}$ ✓✓**M** $= \frac{\frac{3x-6-2x+6}{6x}}{}$ ✓**M** $= \frac{x}{6x}$ ✓**A** $= \frac{1}{6}$ ✓**A**	Common denominator: 1 mark $3(x-2)-2(x-3)$: 1 mark $3x-6-3x+6$: 1 mark Simplification: 1 mark Answer: 1 mark	(5)
3.1.8	$\frac{3a^{-2}b \times 24ab}{9a^2b^{-2}}$ $= \frac{24a^{-1}b^2}{3a^2b^{-2}}$ ✓**M** $= \frac{8b^4}{a^3}$ ✓✓**A**	Simplification: 1 mark $8b^4$: 1 mark a^3: 1 mark	(3)
3.1.9	$\frac{x^2-1}{3x+3}$ $= \frac{(x-1)(x+1)}{3(x+1)}$ ✓✓**M** $= \frac{x-1}{3}$ ✓**A**	$(x-1)(x+1)$: 1 mark $3(x+1)$: 1 mark Answer:1 mark	(3)
3.2.1	$3a^2bc^2(3a^2-4b-c)$ $= 9a^4bc^2$ ✓ $- 12a^2b^2c^2$ ✓ $- 3a^2bc^3$ ✓**A**	1 mark for each term	(3)
3.2.2	$(2x-3)(x+1)$ $= 2x^2$ ✓ $- x$ ✓ $- 3$ ✓**A**	$2x^2$: 1 mark $-x$: 1 mark -3: 1 mark	(3)
3.2.3	$(x-3)^2 - x(x+4)$ $= x^2 - 6x + 9 - x^2 - 4x$ ✓✓**M** $= -10x + 9$ ✓**A**	x^2-6x+9: 1 mark $-x^2-4x$: 1 mark Answer:1 mark	(3)
3.3.1	$10t^2 - 5t$ $= 5t$ ✓$(2t-1)$ ✓**A**	5t: 1 mark 2t – 1: 1 mark	(2)
3.3.2	$81 - 100a^2$ $= (9-10a)$ ✓$(9+10a)$ ✓**A**	9 – 10a: 1 mark 9 + 10a: 1 mark	(2)
3.3.3	$(x+y)(2+a)$ ✓✓**A**	Answer: 2 marks	(2)
3.3.4	$6x^3(a-b) + x(b-a)$ $= 6x^3(a-b) - x(a-b)$ ✓**M** $= x(a-b)(6x^2-1)$ ✓✓✓**A**	$-x(a-b)$: 1 mark x: 1 mark $(6x^2-1)$: 1 mark $(a-b)$:1 mark	(4)
3.3.5	$(a+b)(4-x^2)$ ✓✓**M** $= (a+b)(2+x)(2-x)$ ✓**A**	Common factor: 1 mark $(4-x^2)$: 1 mark $(2+x)(2-x)$: 1 mark	(3)
3.3.6	$x^2 + 5x + 6$ $= (x+3)(x+2)$ ✓✓ **M**	$(x+3)$: 1 mark $(x+2)$: 1 mark	(2)
3.3.7	$2a^2 - 18a + 36$ $= 2(a^2 - 9a + 18)$ ✓ **M** $= 2(a-6)(a-3)$ ✓✓**A**	$2(a^2-9a+18)$: 1 mark Answer:2 marks	(3)

3.4.1	$2x - 5 = 5x + 16$ $-3x$✓ $= 21$ ✓ **M** **or** -21✓ $= 3x$ ✓ **M** $x = -7$ ✓ **A** $-7 = x$✓ **A**	$3x$: 1 mark 21: 1 mark Answer:1 mark	(3)
3.4.2	$x - \frac{x-1}{2} = 3$ × 2: $2x - x + 1 = 6$✓ **M** $x + 1 = 6$✓ **M** $x = 5$✓**A**	Multiplying by 2: 1 mark Simplifying:1 mark Answer: 1 mark	(3)
3.4.3	$\frac{(x-2)}{4} + \frac{(2x+1)}{3} = \frac{5}{3}$ × 12: $3(x-2) + 4(2x+1) = 4 \times 5$✓✓✓ **M** $3x - 6 + 8x + 4 = 20$ ✓ **M** $11x = 22$ $x = 2$ ✓**A**	$3(x-2)$: 1 mark $4(2x+1)$: 1 mark 4×5: 1 mark Simplifying: 1 mark Answer: 1 mark	(5)
3.4.4	$(x-3)(x+4) = 0$ $x - 3 = 0$ or $x + 4 = 0$ $x = 3$✓or $x = -4$✓**A**	Answer: 2 marks	(2)
3.4.5	$x^2 - 1 = 0$ $(x-1)(x+1) = 0$✓**M** $x - 1 = 0$ or $x + 1 = 0$ $x = 1$✓ or $x = -1$✓**A** **or** $x^2 = 1$✓**M** $\therefore x = 1$✓ or $x = -1$✓**A**	Factorising: 1 mark Answer: 2 marks	(3)
3.4.6	$3^{x+1} = 3^4$✓ $x + 1 = 4$✓ $x = 3$✓	Applying exponential law: 1 mark Equating exponents: 1 mark Answer: 1 mark	(3)
3.4.7	$x^3 = -27$ $x = \sqrt[3]{-27}$ $x = -3$✓✓ **A**	Answer: 2 marks	(2)
3.4.8	$2^x = \frac{1}{64}$ $2^x = 2^{-6}$✓**M** $x = -6$✓**A**	2^{-6}: 1 mark Answer: 1 mark	(2)
3.5.1	$2x^3 - 3x^2 + 9x + 2$ $= 2(-2)^3 - 3(-2)^2 + 9(-2) + 2$✓**M** $= -16 - 12 - 18 + 2$✓**M** $= -44$✓**A**	Substitution: 1 mark Simplifying: 1 mark Answer: 1 mark	(3)
3.5.2	$\frac{5ac}{b}$ $= \frac{5(2)(\frac{-1}{2})}{(-3)}$ ✓**M** $= \frac{-5}{-3}$ ✓✓**A**	Substitution: 1 mark Simplifying: 2 marks	(3)

	$= 1\frac{2}{3}$		
3.5.3	$3x^2 - 2xy - y^2$ $= 3(2)^2 - 2(2)(-3) - (-3)^2$ ✓**M** $= 12 + 12 - 9$ ✓**M** $= 15$ ✓**A**	Substitution: 1 mark Simplifying: 2 marks Answer: 1 mark	(3)
3.5.4	$2 \times 3^{1-x}$ $= 2 \times 3^{1-(-2)}$ $= 2 \times 3^3$ ✓**M** $= 54$ ✓**A**	Simplifying: 1 mark Answer: 1 mark	(2)

3.6.1	<table><tr><td>Figure</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Number of black tiles</td><td>1</td><td>2</td><td>3</td><td>4</td></tr><tr><td>Number of white tiles</td><td>6</td><td>10</td><td>***14*** ✓**A**</td><td>***18*** ✓**A**</td></tr></table>	Answer: 2 marks	(2)
3.6.2	$T_n = 4n + 2$	$4n$: 1 mark 2: 1 mark	(2)
3.7.1	Triangular numbers ✓✓**A**	Answer: 2 marks	(2)
3.7.2	$T_n = \frac{n(n+1)}{2}$ ✓✓**A** $T_{20} = \frac{20(20+1)}{2}$ ✓**M** $= 210$ ✓**A**	T_n: 2 marks Substitution: 1 mark Answer: 1 mark	(4)
3.8.1	<table><tr><td>x</td><td>-2</td><td>-1</td><td>0</td><td>1</td></tr><tr><td>y</td><td>-11</td><td>-8</td><td>-5</td><td>-2</td></tr></table>	1 mark each	(4)
3.8.2	<table><tr><td>x</td><td>-3</td><td>-1</td><td>0</td><td>1</td></tr><tr><td>y</td><td>1</td><td>$-\frac{1}{3}$</td><td>-1</td><td>$-1\frac{2}{3}$ or $-\frac{5}{3}$</td></tr></table>	1 mark each	(4)

3.9.1	$x = 2$ ✓**A**	Answer: 1 mark	(1)
3.9.2	$y = 2x$ ✓✓**A**	Answer: 2 marks	(2)
3.9.3	CE = 6 units ✓**A**	Answer: 1 mark	(1)

3.10.1	 **X-intercept: 1 mark per graph✓+✓A** **Y-intercept: 1 mark per graph✓+✓A** **Correct labelling of graph: 1 mark per graph ✓+✓A**		(6)
3.10.2	The lines are perpendicular.✓**A**			(1)
3.11	$P\ (3;3)$✓	Answer: 2 marks	(2)
3.12.1	Gradient of $AD = \frac{4}{-2} = -2.$ Equation of $AD\ is\ y = -2x + 4$✓✓ Gradient of $BC = \frac{4}{-2} = -2$ Equation of $BC\ is\ y = -2x - 4$✓✓	−2x : 1 mark 4:1 mark −2x : 1 mark −4:1 mark	(4)
3.12.2	$AD \| \| BC$ ✓ because the gradient of AD = gradient of BC✓	$AD \parallel BC$: 1 mark Reason :1 mark	(2)

4. SPACE AND SHAPE

4.1

Statement	Reason
$\hat{C}_1 = \hat{B}_2 + \hat{D}_1$ $75° = x + 44°$ ✓**M** $\therefore x = 31°$ ✓**A**	ext ∠ of Δ= sum of int. opp $\angle s$ ✓**A** **or** ext ∠ of Δ
$\hat{D}_2 = \hat{B}_2 = 31°$ $\therefore y = 31°$ ✓**A**	alt ∠s and AD || BC ✓**A**

Statement: 1 mark
Correct reason:1 mark
Answer for x: 1 mark
Statement: 1 mark
Correct reason:1 mark

(5)

4.2

Statement	Reason
In ΔAEW : $\hat{E}_2 + \hat{W}_1 = 110°$ ✓**M** but $\hat{E}_2 = \hat{W}_1 = 55°$ ✓**M** $\therefore \quad x = \hat{E}_2 = 55°$ ✓**A**	sum of ∠s of Δ = 180° ✓**A** ∠s opp.equal sides of Δ ✓**A** alt ∠s and CS || HW ✓**A**

Statement: 1 mark
Correct reason:1 mark
Statement: 1 mark
Correct reason:1 mark
Answer for x: 1 mark
Correct reason:1 mark

(6)

4.3

Statement	Reason
$\hat{E} = 95° - 30°$ ✓**M** $= 65°$ ✓**A** **or** $\hat{C}_1 = 180° - 95°$ $= 85°$ ✓**M/A** $\hat{E} + 85° + 30° = 180°$ $\hat{E} + 115° = 180°$ $\hat{E} = 65°$ ✓**A**	ext. ∠ of ΔCED ✓**A** adj. suppl. ∠s or $B\hat{C}E$ is a str. ∠ or ∠s on a str. line sum of ∠s of Δ= 180° ✓ **A**
$\hat{A} + \hat{E} = 180°$ ✓**M** $\hat{A} = 115°$ ✓**A**	co - interior ∠s and AB || CD ✓**A**

Statement: 1 mark
Correct reason:1 mark
Answer: 1 mark

Statement: 1 mark
Correct reason:1 mark
Answer: 1 mark

(6)

4.4

Statement	Reason
In ΔABD and ΔCDB $BD = BD$ ✓**M** $\hat{B}_2 = \hat{D}_1 = 90°$ ✓**M** $AD = CB$ ✓**M** $\therefore \Delta ABD \equiv \Delta CDB$ ✓**A**	common ✓**A** given ✓**A** given ✓**A** 90°H s ✓**A**

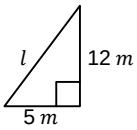
Statement: 1 mark
Correct reason:1 mark
Statement: 1 mark
Correct reason:1 mark
Statement: 1 mark
Correct reason:1 mark
Statement: 1 mark
Correct deduction:1 mark

(8)

4.5.1	Statement: $\hat{B}_1 + \hat{B}_2 + \hat{C}_1 + \hat{C}_2 = 180°$ ✓**M** But $\hat{B}_1 = \hat{B}_2$ and $\hat{C}_1 = \hat{C}_2°$ ✓**M** $\therefore 2\hat{B}_1 + 2\hat{C}_1 = 180°$ ✓**A** $\hat{B}_1 + \hat{C}_1 = 90°$ ✓**A** $\therefore \hat{T}_2 = 90°$ ✓**A** Reason: co-int $\angle s$ and $AB\|\|DC$ ✓**A** given sum of $\angle s$ of Δ= 180° ✓**A** sum of $\angle s$ of Δ= 180° ✓**A**	Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark Correct deduction:1 mark Correct deduction:1 mark	(8)
4.5.2	In ΔTCP and ΔBCT 1. $\hat{C}_2 = \hat{C}_1$ ✓**M** given ✓**A** 2. $\hat{P}_2 = \hat{T}_2$ ✓**M** both 90° ✓**A** 3. $\hat{T}_1 = \hat{B}_1$ ✓**M** sum of $\angle s$ of Δ= 180° ✓**A** $\therefore \Delta TCP \|\|\| \Delta BCT$ ✓**M** $\angle\angle\angle$ ✓**A**	Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark	(8)
4.5.3	$\frac{TC}{BC} = \frac{CP}{CT} = \frac{TP}{BT}$ ✓**M** prop. sides of similar Δs ✓**A** $\frac{TC}{2TC} = \frac{4}{BT}$ ✓**M** $BC = 2TC$ ✓**A** $\frac{1}{2} = \frac{4}{BT}$ ✓**A** $\therefore BT = 8\ cm$ ✓**A**	Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark Correct deduction:1 mark Correct deduction:1 mark	(6)

4.6.1	In ΔABD and ΔACD $AB = AC$ ✓***M*** given ✓**A** $BD = CD$ ✓***M*** given ✓**A** $AD = AD$ ✓***M*** common side ✓**A** $\therefore \Delta ABD \equiv \Delta ACD$ ✓***A*** $s\ s\ s$ ✓**A**	Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark Statement: 1 mark Correct reason:1 mark Correct deduction:1 mark Correct reason:1 mark	(8)
4.6.2	$\hat{A}_1 = \hat{A}_2$ (corr$\angle$s of congruent Δs)✓ $\therefore DA$ bisects BÂC✓		(2)

5. MEASUREMENT

5.1	Let the length of the ladder be l. $l^2 = 12^2 + 5^2 m^2$ $(Pyth)$✓ ✓**M** $l^2 = 169\ m^2$ ✓**A** $l = 13m$ ✓**A** 	Formula/substitution: 2 marks Calculation: 1 mark Answer: 1 mark	(4)

5.2.1	$PS^2 = AP^2 - AS^2$ $= (25 - 4)\ m^2$✓**M** Pyth ✓**A** $PS = 4{,}58\ m$✓**A**	Formula/ substitution: 1 mark Reason: 1 mark Answer: 1 mark	(3)
5.2.2	$PT = 3 \times AB = 12\ m$✓**A**	Answer: 1 mark	(1)
5.2.3	Kite.	Answer: 1 mark	(1)
5.2.4	Area of the kite $= \frac{1}{2} \times PT \times AB$✓**M or** $\frac{PT \times AB}{2}$ $= \frac{1}{2} \times 12\ m \times 4\ m$✓**M** $= 24\ m^2$✓**A**	Formula: 1 mark Substitution: 1 mark Answer: 1 mark	(3)

5.3.1	Perimeter $= 2 \times 100\ m + 2\pi r$ $= 200\ m$ ✓ $+ 2 \times 3{,}14 \times 30\ m$ ✓**M** $\approx 388{,}4\ m$ ✓**CA** ∴ the no. of rounds $= 4\,000\ m \div 388{,}4\ m$ ✓**M** $= 10{,}298661$ Peter must run 11 times round the track. ✓**CA**	Formula/ substitution: 2 marks Answer: 1 mark Calculation: 1 mark Answer: 1 mark	(5)
5.3.2	Area $= l \times b + \pi r^2$ $= 60\ m \times 100\ m + 3{,}14 \times 60^2\ m^2$ ✓✓**M** $= 6\,000\ m^2 + 11\,304\ m^2$ $= 17\,304\ m^2$✓**A**	Formula/ substitution: 2 marks Answer: 1 mark	(3)