EXAMINATION COUNCIL OF ESWATINI
Junior Certificate

Mathematics **309/02**

PAPER 2 **2020**

Confidential

MARK SCHEME

{309/02}

MARKS: 100

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Question	Answer	Mark	Notes	Total
1	**(a)** $\frac{250}{2000}\times 100$ oe 12.5 (%) **(b)** $\frac{80\times 30000}{100}$ oe (E) 24 000 **(c) (i)** $\frac{1880}{18.80}$ (£) 100 **(ii)** 18.80×80 1504	M1 A1 M2 A1 M1 A1 M1 A1	M1 for 6 000 seen	**9**
2	**(a)(i)** 479 000 **(ii)** 4.79×10^5 **(b)** 25 soi Upper bound = 18 725 Lower bound = 18675	B1 B2 B1 B1 B1	B1 for 4.79 or 10^5 SC1 for 4.78541×10^5	**6**
3	**(a)** $(2.3\times 4)\times(10^{-7}\times 10^5)$ 9.2×10^{-2} **(b)** $(7.3-0.92)\times 10^8$ oe 6.38×10^8	M1 A1 M2 A1	M1 for $(7.3\times 10^8)-(0.92\times 10^8)$ oe	**5**

4	**(a)(i)** $\frac{6-2}{3-5}$ oe - 2 **(ii)** $6=-2(3)+c$ or $2=-2(5)+c$ 12 **(iii)** $y=-2x+12$ **(b) (i)** $2t = 12$ $t = 6$ **(ii)** $9x = 6$ $x=\frac{2}{3}$ **(c)** $5p >$ -10 oe $p >$ -2	M1 A1 M1 A1 B1 M2 A1 M2 A1 M2 A1	M1 for $12t-3-10t-6=3$ M1 for $6+5x=14x$ M1 for collecting like terms correctly	**14**
5	**(a) (i)** $7-3(-5)(3)$ 52 **(ii)** $\frac{12}{20}+\frac{25}{20}$ oe $1\frac{17}{20}$ oe **(b) (i)** $8pxy+21pxy-12qxy+3qxy$	M1 A1 M2 A1 M2	M1 for $\frac{3}{5}+\frac{(-5)^2}{20}$ M1 for $8pxy-12qxy+3qxy+21pxy$	

	$29pxy - 9qxy$	A1		
	(ii) $\frac{3t-9-14t+7}{21}$	M2	M1 for $\frac{3(t-3)-7(2t-1)}{21}$	
	$\frac{-11t-2}{21}$	A1		
	(iii) $\frac{4(x-1)}{3x}$	M2	M1 for $\frac{x-1}{3}\times\frac{4}{x}$	
	$\frac{4x-4}{3x}$	A1		
	(c) $2(x-3)+2x$ oe	B1		**16**
	$4x$ - 6	B1		
6	**(a)** correct sketch with labels	B2	B1 for correct sketch without labels	
	(b) correct angles from parallel north lines	B2		
	correct lengths	B2		
	(c) 6.95 to 7.05 (km)	B2	B1 for 13.9 to 14.1 cm	
	(d) 108˚ (107 to 109)	B1		
	(e) (i) correct line bisector with correct arcs	B2	B1 for correct line bisector without arcs	
	(ii) Correct angle bisector at P with correct arcs	B2	B1 for correct angle bisector without arcs	
	(iii) X at intersection	B1		
	(f) (4.45 to 4.55) km	B2	B1 for (8.9 to 9.1) cm	**16**

7	**(a)** 5 , 5, 7, 3, 3, 2 Correct tallies **(b)** 57 **(c)** 57 **(d)** $\frac{1425}{25}$ 57	B3 B1 B1 B2 M2 A1	Subtract 1 for each wrong B1 for median position = 13 M1 for $55(5)+56(5)+57(7)+58(3)+59(3)+60(2)$ oe	**10**
8	**(a)** 54 **(b) (i)** $\frac{16}{54}$ **(ii)** $\frac{26}{54}$ **(iii)** 0	B1 B1 B2 B1	 B1 for $\frac{20+6}{54}$	**5**
9	**(a)** $3.14\times400\times30$ 37 680 **(b)** **(i)** $2\times3.14\times20\times30$ oe 3768 **(ii)** Their b(i) $+2\times3.14\times400$ 6280	M2 A1 M1 A1 M2 A1	M1 for $3.14\times20^2\times30$ M1 for 3.14×20^2	**8**

10	**(a)** octagon	B1		
	(b) $\frac{360}{8}$	M1		
	$45°$	A1		
	(c) 180 - 45 oe	M2	M1 for 45 seen or 6×180 seen	
	$135°$	A1		
	(d) Reflection, through CG	B1B1		
	(e) Rotation, centre O, -90˚	B1B1B1		**11**