N5

Comharra

Gnìomhachas Matamataig
Pàipear 2

Deit — Gun bhuinteanas

Ùine — 1 uair 40 mionaid

Lìon na bogsaichean seo agus leugh na tha air a chlò-bhualadh gu h-ìosal.

Làn ainm na sgoile no colaiste

Baile

Ciad ainm(ean)

Sloinneadh

Àireamh an t-suidheachain

Latha-breith

Latha   Mìos   Bliadhna   Àireamh an oileanaich

Comharran gu lèir — 55

Feuch na ceistean UILE.

Faodaidh tu àireamhair a chleachdadh.

Gus na comharran gu lèir fhaighinn, feumaidh tu d' obrachadh a-mach a shealltainn sna freagairtean agad.

Cuir na h-aonadan anns na freagairtean agad far a bheil sin iomchaidh.

Sgrìobh do fhreagairtean gu soilleir anns na beàrnan san leabhran seo. Tha àite a bharrachd airson fhreagairtean aig deireadh an leabhrain seo. Ma chleachdas tu an t-àite seo, feumaidh tu àireamh na ceiste a tha thu a' freagairt a chomharrachadh gu soilleir.

Cleachd inc **gorm** no **dubh**.

Mus fàg thu seòmar na deuchainne feumaidh tu an leabhran seo a thoirt don Fhreiceadan; mura dèan thu sin, dh'fhaodadh tu na comharran gu lèir airson a' phàipeir seo a chall.
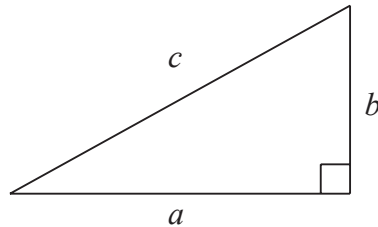
SQA

LIOSTA FHOIRMLEAN

Cearcall-thomhas cearcaill $\qquad C = \pi d$

Farsaingeachd cearcaill $\qquad A = \pi r^2$

Teoram Pythagoras

$$a^2 + b^2 = c^2$$

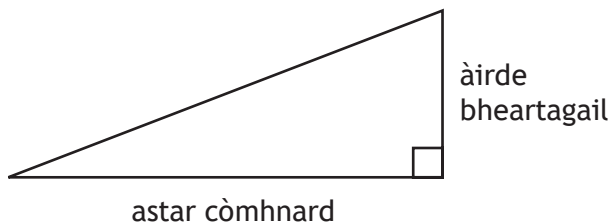Tomhas-lìonaidh siolandair $\qquad V = \pi r^2 h$

Tomhas-lìonaidh priosaim $\qquad V = Ah$

Tomhas-lìonaidh còin $\qquad V = \frac{1}{3}\pi r^2 h$

Tomhas-lìonaidh cruinne $\qquad V = \frac{4}{3}\pi r^3$

Claonadh àbhaisteach $\qquad s = \sqrt{\dfrac{\Sigma(x-\bar{x})^2}{n-1}}$

$\qquad$ no $\quad s = \sqrt{\dfrac{\Sigma x^2 - \dfrac{(\Sigma x)^2}{n}}{n-1}}$, far as e n meud an taghaidh.

Caisead

$$\text{caisead} \ = \ \frac{\text{àirde bheartagail}}{\text{astar còmhnard}}$$

Comharran gu lèir — 55

Feuch na ceistean UILE

1. Cheannaich Seac càr o chionn 3 bliadhna a chosg £1400.

Tha luach a' chàir air a dhol sìos 13% gach bliadhna.

(a) Obraich a-mach luach a' chàir an-dràsta.

Sgrìobh do fhreagairt ceart gu **2 fhigear brìgheil.** **4**

Reic Seac a chàr airson £950.

(b) Obraich a-mach a chall mar cheudad den **phrìs thùsail.** **2**

[Tionndaidh an duilleag

2. Chaidh prìsean uan a chaidh a reic san t-Sultain a chlàradh.

Tha sampall de na prìsean, ann an notaichean, ri fhaicinn.

72	75	73	68	65	70

(a) Airson nam prìsean seo, obraich a-mach:

   (i) a' chuibheasachd **1**

   (ii) an claonadh àbhaisteach. **3**

Chaidh prìsean uan a chaidh a reic san Lùnastal a chlàradh cuideachd.

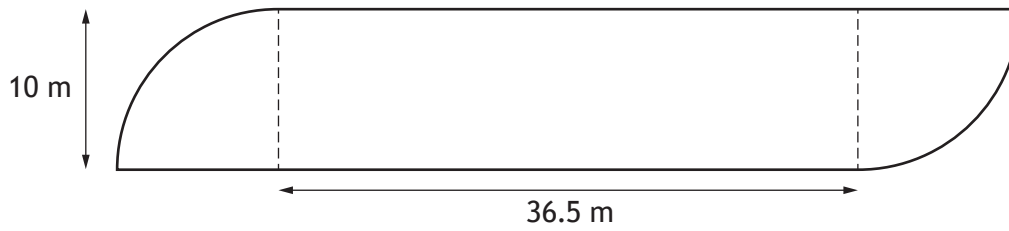B' e a' phrìs chuibheasach £70.20 agus b' e an claonadh àbhaisteach £3.85.

(b) Dèan dà choimeas dligheach mu phrìsean uan san Lùnastal agus san t-Sultain. **2**

3. Tha taigh-òsta a' togail amar-snàmh.

Tha e ann an cumadh ceart-cheàrnach agus dà chairteal chearcaill mar a chithear gu h-ìosal.

10 m

36.5 m

Bidh rèile sàbhailteachd aig an amar-snàmh timcheall an oir aige.

- Bidh dà bheàrn 125 cm a leud ann gus am faighear a-steach don amar.

- Tha rèile sàbhailteachd air a reic ann am faid 3 meatairean.

- Cosgaidh gach fad 3 meatairean £11.49.

Obraich a-mach a' chosgais as ìsle airson an rèile sàbhailteachd airson an amar.   **5**

4. Shiubhail Fionnlagh bhon dachaigh aige dhan obair, 23.1 mìle air falbh.

Bha an astar cuibheasach aige 42 mph.

Dh'fhàg e an taigh aig 08:12.

(a) Obraich a-mach dè an uair a ràinig e an obair.　　2

Aig an deireadh-sheachdain, tha Fionnlagh an dùil turas **tilleadh** a dhèanamh bhon dachaigh aige chun ionad bhùthan.

Tha fios aige gu bheil:

- an ionad bhùthan 26 mìle air falb
- an càr aige a' còmhdach cuibheasachd de 67 km gach galan de chonnadh
- 5 liotair de chonnadh aig a' chàr anns an tanca aige.

(b) Faigh a-mach am bi connadh gu leòr aig Fionnlagh gus an turas **tilleadh** seo a chrìochnachadh.

　　1 mìle = 1.609 km

　　1 gallan = 4.545 litres　　4

5. Tha Dàibhidh a-nis a' sgrìobhadh an leabhar ùr aige.
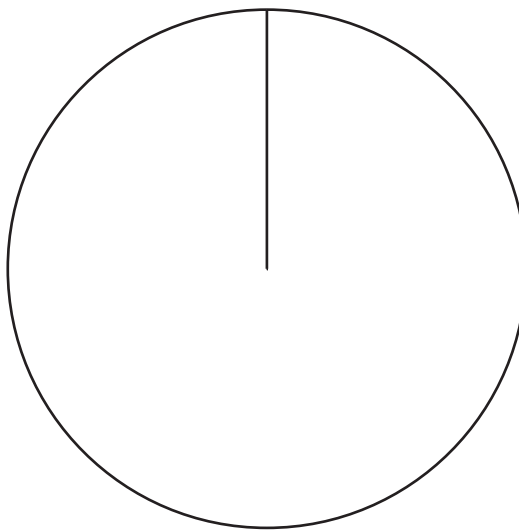
Tha e a' cur seachad:

- 210 uairean air rannsachadh
- 96 uairean ann an coinneamhan
- 234 uairean a' sgrìobhadh an leabhair.

(a) Tog clàr-cearcaill gus am fiosrachadh seo a nochdadh. **3**

(Gheibh thu diagram a bharrachd, ma tha feum air, air *duilleag 18*.)

Ùine ga chosg air gach gnìomh
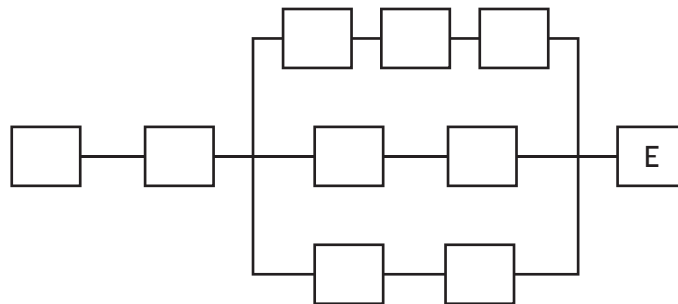

[Tionndaidh an duilleag

5. **(a' leantainn)**

Rinn a' chompanaidh foillseachaidh an clàr a leanas a sheallas a h-uile gnìomh a tha an lùib foillseachadh an leabhair.

Gnìomhachd	Tuairisgeul	Gnìomhachd roimhe
A	a' dealbhachadh còmhdachr	H
B	sgrìobh 1^d dreach	C
C	ransaich beachdan	chan eil gin
D	deasaich leabhar	B
E	foillsich leabhar	A,J,G
F	ath-obraich	D
G	leughadh dearbhaidh	F
H	tagh tiotal	B
I	còir-leathbhreac	B
J	ISBN	I

(b) Crìochnaich an diagram gu h-ìosal gus na gnìomhan a shealltainn.   **2**

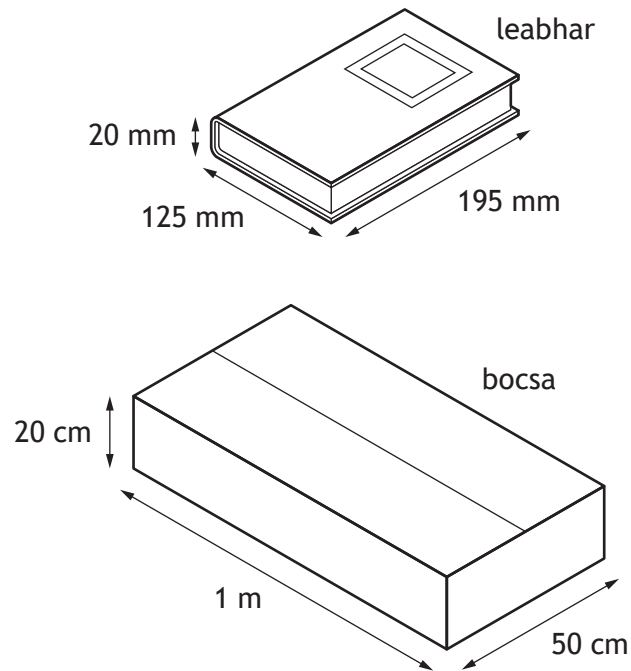(Gheibh thu diagram a bharrachd, ma tha feum air, air *duilleag 18*.)

5. (a' leantainn)

Feumar na leabhraichean a phacaigeadh ann am bogsaichean airson an giùlan gu na bùthan leabhraichean.

Tha tomhasan an leabhair agus tomhasan a-staigh a' bhogsa air an sealltainn anns na diagraman.

leabhar
20 mm
125 mm
195 mm

bocsa
20 cm
1 m
50 cm

Feumaidh na leabhraichean a bhith air an cur sìos leis a' chòmhdach aghaidh a' coimhead gu h-àrd anns na bogsaichean.

Feumaidh iad uile a bhith air an co-thaobhadh san aon taobh.

(c)   Obraich a-mach an àireamh as motha de leabhraichean a ghabhas a phacaigeadh a-steach do gach bogsa. **3**

[Tionndaidh an duilleag

5. (a' leantainn)

Seo an ceathramh leabhar a sgrìobh Daibhidh anns an t-sreath leabhraichean seo.

Tha cosgais gach leabhar air a shealltainn sa chlàr.

Leabhar	Cosgais	Bliadhna fhoillsichte
1	£5.50	2013
2	£8.50	2015
3	£4.00	2016
4	£12.00	2019

Tha na tairgsean sònraichte a leanas rim faighinn airson na ceithir leabhraichean a cheannach.

Bùth A

Ceannaich na 4 uile sàbhail 20%

Bùth B

Ceannaich na 4 uile airson £22.99

Bùth C

Ceannaich na 4 uile, faigh an 2 a chaidh fhoillseachadh o chionn ghoirid aig leth prìs

(d) Obraich a-mach dè a' bhùth a tha a' tabhann an tairgse as fheàrr airson na ceithir leabhraichean a cheannach.

Cleachd d' obrachadh gus do fhreagairt a dhearbhachadh. **3**

6. Tha bun-sgoil ionadail a' cumail tachartas samhraidh.

Tha iad an dùil aran-milis a dhèanamh airson a reic aig an tachartas.

- Bidh iad a' dèanamh 10 treallaich de aran-milis.
- Anns gach treidhe tha 24 sliseagan de aran-milis.
- Is e a' chosgais iomlan £38.20 airson 10 treallaich de aran-milis a dhèanamh.

Tha an sgoil airson prothaid de co-dhiù £20 a dhèanamh à reic an arain-milis seo.

(a) Obraich a-mach a' phrìs as ìsle a bu chòir don sgoil a ghearradh airson pìos arain-mhilis. **2**

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duilleag 11

6. (a' leantainn)

Stèidhich an club stiùiridh ionadail cùrsa aig an tachartas.

- Bidh com-pàirtichean a' fàgail an àite tòiseachaidh agus a' ruith air giùlan 055° airson 140 m gu bratach A.

- Bidh iad an uairsin a' ruith air giùlan 170° airson 252 m gu bratach B.

(b)   (i)   Tog dealbh-sgèile gus an t-slighe a shealltainn.   **3**

Cleachd sgèile 1 cm : 40 m

(Gheibh thu diagram a bharrachd, ma tha feum air, air *duilleag 19*.)

N

↑

tòisich

(ii)   Bidh na sgoilearan an uair sin a' tilleadh chun àite tòiseachaidh.

Cleachd an dealbh sgèile gus faighinn a-mach dè an giùlan agus an t-astar aig a' phuing tòiseachaidh bho bhratach B.   **2**

6. **(a' leantainn)**

Tha dhà de na geamannan aig an tachartas nan geama tùm fortanach agus dìsnean.

Tha tiogaidean le àireamhan 1 gu 150 aig an tùm fortanach.
Gus duais a bhuannachadh feumaidh an tiogaid crìochnachadh ann an neoni neo còig.

Tha an geama dìsnean a' toirt a-steach a bhith a' roiligeadh dà dhìsnean aig an aon àm.
Gus duais a bhuannachadh tha feum air **9 no barrachd** gu h-iomlan.

(c) Obraich a-mach dè an geama aig a bheil an coltachd as àirde gun tèid duais a bhuannachadh.　　4

7. Bidh Jamel a' cumail iasg.

Gus uisge tap a dhèanamh sàbhailte dha iasg, thèid feabhasaiche a chuir ris.

Tha tomhas-lìonaidh an fheabhasaiche a tha a dhìth ann an co-rèir dìreach ris an tomhas-lìonaidh de uisge tap.

Feumar 5 ml de fheabhasaiche a chleachdadh airson gach 20 000 ml de uisge tap.

(a) Obraich a-mach tomhas-lìonaidh an fheabhasaiche a tha a dhìth airson 14 liotairean de dh'uisge tap.
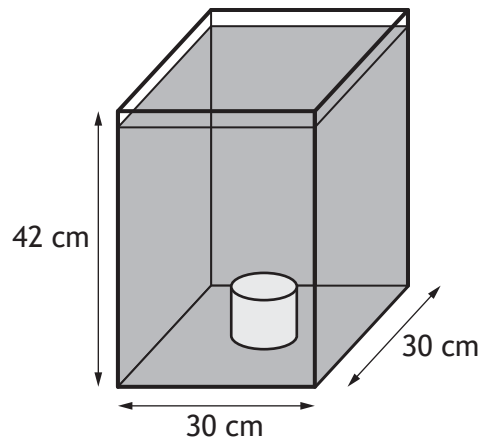
2

7. **(a' leantainn)**

Tha tanca èisg aig Jamel.

Is e ciùbaid a th' anns an tanca èisg le tomhasan 30 cm le 30 cm le 42 cm.

Tha bogsa solais siolandair aig a' bhonn aig an tanca mar a chithear.

42 cm

30 cm

30 cm

Tha trast-thomhas de 10 cm aig a' bhogsa solais siolandair agus àirde 8 cm.

Tha **beàrn 2 cm** eadar mullach an tanca agus ìre an uisge.

Chan eil am bogsa solais a' cumail uisge sam bith.
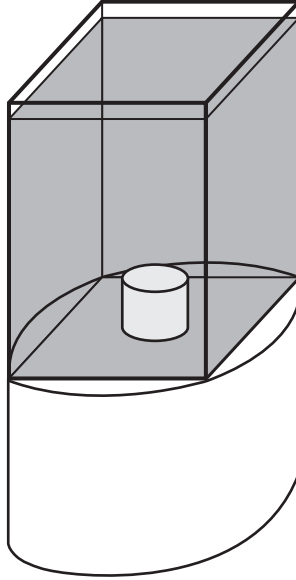
(b) Obraich a-mach tomhas-lìonaidh uisge anns an tanca. **4**
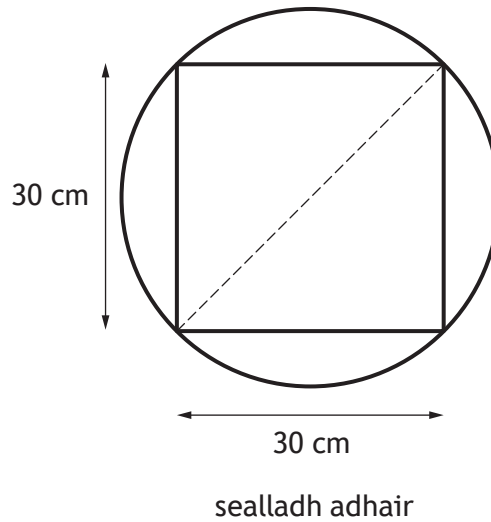
7. **(a' leantainn)**

Cheannaich Jamel stannd airson an tanca èisg seo.

Tha mullach an stannd cruinn.

Bidh oiseanan bonn ceàrnagach an tanca a' suathadh ri oir a' chearcaill mar a chithear.

Tha trast-thomhas a' chearcaill air a shealltainn leis an loidhne dhotagach san t-sealladh bhon adhar.

sealladh adhair

7. (a' leantainn)

(c) Obraich a-mach farsaingeachd mullach an stannd.

Sgrìobh do fhreagairt ann am **meatairean ceàrnagach.**

4

[CRÌOCH A' PHÀIPEIR EISIMPLEIR]

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ÀITE A BHARRACHD AIRSON FHREAGAIRTEAN

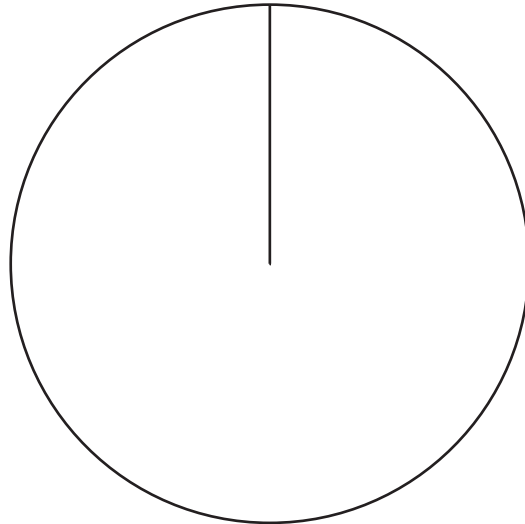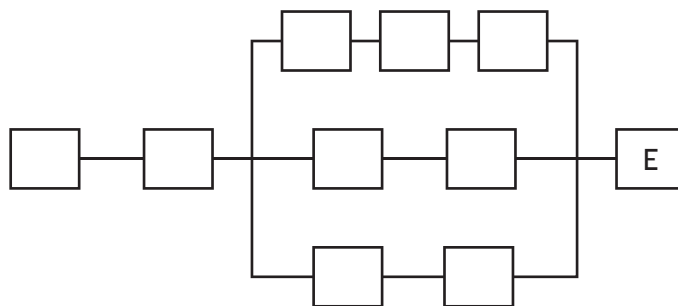Diagram a bharrachd airson ceist 5 (a)

Ùine ga chosg air gach gnìomh

Diagram a bharrachd airson ceist 5 (b)

ÀITE A BHARRACHD AIRSON FHREAGAIRTEAN

Diagram a bharrachd airson ceist 6 (b) (i)

N

↑

tòisich

S844/75/02

Applications of Mathematics
Paper 2

Marking Instructions

SQA

General marking principles for National 5 Applications of Mathematics

Always apply these general principles. Use them in conjunction with the detailed marking instructions, which identify the key features required in candidates' responses.

For each question, the marking instructions are generally in two sections:

generic scheme — this indicates why each mark is awarded
illustrative scheme — this covers methods which are commonly seen throughout the marking

In general, you should use the illustrative scheme. Only use the generic scheme where a candidate has used a method not covered in the illustrative scheme.

(a) Always use positive marking. This means candidates accumulate marks for the demonstration of relevant skills, knowledge and understanding; marks are not deducted for errors or omissions.

(b) If you are uncertain how to assess a specific candidate response because it is not covered by the general marking principles or the detailed marking instructions, you must seek guidance from your team leader.

(c) One mark is available for each •. There are no half marks.

(d) If a candidate's response contains an error, all working subsequent to this error must still be marked. Only award marks if the level of difficulty in their working is similar to the level of difficulty in the illustrative scheme.

(e) Only award full marks where the solution contains appropriate working. A correct answer with no working receives no mark, unless specifically mentioned in the marking instructions.

(f) Candidates may use any mathematically correct method to answer questions, except in cases where a particular method is specified or excluded.

(g) If an error is trivial, casual or insignificant, for example 6 x 6 = 12, candidates lose the opportunity to gain a mark, except for instances such as the second example in point (h) below.

(h) If a candidate makes a transcription error (question paper to script or within script), they lose the opportunity to gain the next process mark, for example

This is a transcription error and so the mark is not awarded.

This is no longer a solution of a quadratic equation, so the mark is not awarded.

$$x^2 + 5x + 7 = 9x + 4$$
$$x - 4x + 3 = 0$$
$$x = 1$$

The following example is an exception to the above

This error is not treated as a transcription error, as the candidate deals with the intended quadratic equation. The candidate has been given the benefit of the doubt and all marks awarded.

$$x^2 + 5x + 7 = 9x + 4$$
$$x - 4x + 3 = 0$$
$$(x - 3)(x - 1) = 0$$
$$x = 1 \text{ or } 3$$

(i) **Horizontal/vertical marking**
If a question results in two pairs of solutions, apply the following technique, but only if indicated in the detailed marking instructions for the question.

Example:

$$\bullet^5 \qquad \bullet^6$$
$$\bullet^5 \quad x = 2 \quad x = -4$$
$$\bullet^6 \quad y = 5 \quad y = -7$$

Horizontal: $\bullet^5$ $x = 2$ and $x = -4$ Vertical: $\bullet^5$ $x = 2$ and $y = 5$
                  $\bullet^6$ $y = 5$ and $y = -7$ $\bullet^6$ $x = -4$ and $y = -7$

You must choose whichever method benefits the candidate, **not** a combination of both.

(j) In final answers, candidates should simplify numerical values as far as possible unless specifically mentioned in the detailed marking instruction. For example

$\dfrac{15}{12}$ must be simplified to $\dfrac{5}{4}$ or $1\dfrac{1}{4}$ $\dfrac{43}{1}$ must be simplified to 43

$\dfrac{15}{0.3}$ must be simplified to 50 $\dfrac{4/5}{3}$ must be simplified to $\dfrac{4}{15}$

$\sqrt{64}$ must be simplified to 8*****

*The square root of perfect squares up to and including 144 must be known.

(k) Do not penalise candidates for any of the following, unless specifically mentioned in the detailed marking instructions:

- working subsequent to a correct answer
- correct working in the wrong part of a question
- legitimate variations in numerical answers/algebraic expressions, for example angles in degrees rounded to nearest degree
- omission of units
- bad form (bad form only becomes bad form if subsequent working is correct), for example

$(x^3 + 2x^2 + 3x + 2)(2x + 1)$ written as

$(x^3 + 2x^2 + 3x + 2) \times 2x + 1$

$= 2x^4 + 5x^3 + 8x^2 + 7x + 2$

gains full credit

- repeated error within a question, but not between questions or papers

(l) In any 'Show that…' question, where candidates have to arrive at a required result, the last mark is not awarded as a follow-through from a previous error, unless specified in the detailed marking instructions.

(m) You must check all working carefully, even where a fundamental misunderstanding is apparent early in a candidate's response. You may still be able to award marks later in the question so you must refer continually to the marking instructions. The appearance of the correct answer does not necessarily indicate that you can award all the available marks to a candidate.

(n) You should mark legible scored-out working that has not been replaced. However, if the scored-out working has been replaced, you must only mark the replacement working.

(o) If candidates make multiple attempts using the same strategy and do not identify their final answer, mark all attempts and award the lowest mark. If candidates try different valid strategies, apply the above rule to attempts within each strategy and then award the highest mark.

For example:

Strategy 1 attempt 1 is worth 3 marks.	Strategy 2 attempt 1 is worth 1 mark.
Strategy 1 attempt 2 is worth 4 marks.	Strategy 2 attempt 2 is worth 5 marks.
From the attempts using strategy 1, the resultant mark would be 3.	From the attempts using strategy 2, the resultant mark would be 1.

In this case, award 3 marks.

Marking Instructions for each question

Question			Generic scheme	Illustrative scheme	Max mark
1.	(a)		$\bullet^1$ Strategy: identify multiplier	$\bullet^1$ 0.87	4
			$\bullet^2$ Strategy: identify power	$\bullet^2$ ...^{3}	
			$\bullet^3$ Process: calculate value	$\bullet^3$ 921.90(42)	
			$\bullet^4$ Communication: round to 2 significant figures	$\bullet^4$ 920	
	(b)		$\bullet^5$ Strategy: know how to calculate percentage loss	$\bullet^5$ $\dfrac{450}{1400} \times 100$	2
			$\bullet^6$ Process: calculate percentage	$\bullet^6$ 32(.1...)	
			Alternative Strategy		2
			$\bullet^5$ Strategy: know to use trial and improvement	$\bullet^5$ evidence	
			$\bullet^6$ Process: calculate percentage	$\bullet^6$ 32	
2.	(a)	(i)	$\bullet^1$ Process: calculate mean	$\bullet^1$ 70.5	1
		(ii)	$\bullet^2$ Process: calculate $(x - \bar{x})^2$	$\bullet^2$ 2.25, 20.25, 6.25, 6.25, 30.25, 0.25	3
			$\bullet^3$ Strategy/process: calculate $\sum(x - \bar{x})^2$ and substitute into formula	$\bullet^3$ $\sqrt{\dfrac{65.5}{6-1}}$	
			$\bullet^4$ Process: calculate standard deviation	$\bullet^4$ 3.62	
			Alternative Strategy		3
			$\bullet^2$ Process: calculate $\sum x$ and $\sum x^2$	$\bullet^2$ 423, 29887	
			$\bullet^3$ Strategy/process: substitute into formula	$\bullet^3$ $\sqrt{\dfrac{29887 - \dfrac{423^2}{6}}{6-1}}$	
			$\bullet^4$ Process: calculate standard deviation	$\bullet^4$ 3.62	
	(b)		$\bullet^5$ Communication: comment regarding mean	$\bullet^5$ eg on average prices in August were cheaper.	2
			$\bullet^6$ Communication: comment regarding standard deviation	$\bullet^6$ eg prices in August were less consistent	

	Question		Generic scheme	Illustrative scheme	Max mark
3.			$\bullet^1$ Strategy: know how to find arc length of quarter or semi-circle	$\bullet^1$ $\dfrac{20\pi}{4}$ or $\dfrac{20\pi}{2}$	5
			$\bullet^2$ Process: calculate curved edge of one quarter circle or semi-circle	$\bullet^2$ $15.7\ldots$ or $31.4\ldots$	
			$\bullet^3$ Process: calculate perimeter of swimming pool	$\bullet^3$ $2\times15.7\ldots+2\times10+2\times36.5=124.4\ldots$	
			$\bullet^4$ Strategy: know how to calculate number of lengths	$\bullet^4$ $(\ldots-2\times1.25)\div3$	
			$\bullet^5$ Process: calculate number of lengths, appropriate rounding and calculate cost	$\bullet^5$ 40.6 leading to $41\times11.49=471.09$	
4.	(a)		$\bullet^1$ Process: calculate time in hours	$\bullet^1$ 0.55	2
			$\bullet^2$ Process/communication: calculate the time of arrival	$\bullet^2$ 08:12 + 33 mins = 08:45	
	(b)		$\bullet^3$ Strategy/process: convert litres to gallons	$\bullet^3$ $5\div4.545=1.1\ldots$	4
			$\bullet^4$ Strategy/process:	$\bullet^4$ $1.1\ldots\times67=73.7\ldots$	
			$\bullet^5$ Strategy/process: convert km to miles	$\bullet^5$ $73.7\div1.609=45.8\ldots$	
			$\bullet^6$ Communication: state conclusion consistent with working	$\bullet^6$ No, since $45.8<52$	

Question			Generic scheme	Illustrative scheme	Max mark
5.	(a)		•¹ Process: calculate total number of hours	•¹ 210 + 96 + 234 = 540	3
			•² Process: calculate angles	•² <table><tr><td>210 hours research</td><td>$\frac{210}{540} \times 360 = 140$</td></tr><tr><td>96 hours meetings</td><td>$\frac{96}{540} \times 360 = 64$</td></tr><tr><td>234 hours writing</td><td>$\frac{234}{540} \times 360 = 156$</td></tr></table>	
			•³ Communication: draw and label pie chart consistent with previous working	•³ diagram consistent with working	

Notes:
1. •¹ and •² can be implied in subsequent working
2. •³ is available if any 2 angles are within tolerance $\pm 1°$ leading to third angle being outwith tolerance
3. •³ is not available if the three calculated angles do not add to $360°$

	(b)		•⁴ Communication: any 5 in correct sequence		2
			•⁵ Communication: remaining 4 in correct sequence		
	(c)		•⁶ Strategy: know to and starts to calculate the correct two ways of packing	•⁶ evidence of the two **correct** ways of packing with the front cover facing upwards $$100 \div 12.5 = 8$$	3
			•⁷ Process: calculate number of boxes for one arrangement	•⁷,⁸ $50 \div 19.5 = 2.56\ldots$ $$20 \div 2 = 10$$ $$2 \times 8 \times 10 = 160$$ and $$100 \div 19.5 = 5.12\ldots$$	
			•⁸ Process/communication: calculate the second arrangement and state maximum number of books	$50 \div 12.5 = 4$ $$20 \div 2 = 10$$ $$5 \times 4 \times 10 = 200$$ Maximum - 200 books	

Question			Generic scheme	Illustrative scheme	Max mark
5.	(d)		•⁹ Process: calculate cost of shop A	•⁹ 24	**3**
			•¹⁰ Process: calculate cost of shop C	•¹⁰ 22	
			•¹¹ Communication: conclusion consistent with working	•¹¹ Shop C	
			Alternative Strategy •⁹ Process: calculate discount for 1 shop	•⁹ 6 or 7.01 or 8	
			•¹⁰ Process: calculate discount for other two shops	•¹⁰ remaining two	
			•¹¹ Communication: conclusion consistent with working	•¹¹ Shop C	
6.	(a)		•¹ Strategy: know how to calculate minimum price	•¹ Evidence	**2**
			•² Process: calculations completed with appropriate rounding	•² $(38 \cdot 20 + 20) \div (24 \times 10) = 0 \cdot 2425$ leading to $0 \cdot 25$	
	(b)	(i)	•³ Process: calculate scale distances	•³ $140 \div 40 = 3 \cdot 5\,\text{cm}$ $252 \div 40 = 6 \cdot 3\,\text{cm}$	**3**
			•⁴ Process/communication: correct bearing measured and correct length drawn	•⁴ Bearing of $055°\,(\pm1°)$ measured correctly and $3 \cdot 5\ \text{cm}(\pm0 \cdot 1\ \text{cm})$ correctly drawn	
			•⁵ Process/communication: correct bearing measured and correct length drawn	•⁵ Bearing of $170°\,(\pm1)$ measured correctly and $6 \cdot 3\ \text{cm}(\pm0 \cdot 1\ \text{cm})$ correctly drawn	
		(ii)	•⁶ Process: bearing consistent with diagram	•⁶ evidence	**2**
			•⁷ Process: distance consistent with diagram	•⁷ evidence	

Question	Generic scheme	Illustrative scheme	Max mark
6. (c)	•^{8} Process/communication: calculate lucky dip probability •^{9} Strategy/process: find all combinations for two dice •^{10} Process: find the number of combinations 9 or more •^{11} Process/communication: calculate probability and compare	•^{8} $\dfrac{30}{150}$ (or 0.2) •^{9} Evidence of 36 combinations <table><tr><td></td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td></tr><tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr><tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr><tr><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td></tr><tr><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td></tr><tr><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td></tr><tr><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td></tr></table> •^{10} 10 •^{11} $\dfrac{10}{36}$ (or 0.278) since $0.2 < 0.278$ dice game has a better chance	4
7. (a)	•^{1} Strategy/Process: change to consistent units •^{2} Process: calculate volume of conditioner	•^{1} 20 (l) or 14 000(ml) •^{2} 0.0035 (l) or 3.5 (ml)	2
(b)	•^{3} Strategy: substitute correctly into cylinder formula •^{4} Process: calculate volume of cylinder •^{5} Strategy/Process: calculate volume of cuboid with height 40cm •^{6} Strategy/Process: calculate volume of water	•^{3} $\pi \times 5^2 \times 8$ •^{4} 628.318... •^{5} 36 000 •^{6} 35 371.6...	4

Question			Generic scheme	Illustrative scheme	Max mark
7.	(c)		•[7] Strategy/communication: correct substitution into Pythagoras' theorem	•[7] $30^2 + 30^2$	4
			•[8] Process: calculate length of diameter	•[8] $42.426...$	
			•[9] Process: calculate area of table top	•[9] $1413.7...$	
			•[10] Process/communication: convert to square metres	•[10] $0.14137...$	

[END OF SPECIMEN MARKING INSTRUCTIONS]