Q1.   Mrs Moger took a group of children to the theatre.

Adult Ticket   £13.20

Child Ticket   £8.30

The total cost of **one** adult ticket and **all** the child tickets was £146.

Work out the number of children Mrs Moger took to the theatre.

.... children

(Total 3 marks)

Q2.   Use your calculator to work out

$$\sqrt{12.63 + 18^2}$$

Write down all the figures on your calculator display.

....
(Total 2 marks)

Q3.   Esther went to France.

She changed £300 into Euros (€).
The exchange rate was £1 = €1.25.

(a)   How many Euros did she get?

€ ....

(2)

Esther went shopping in France.
She bought:

2 necklaces for €2.60 **each**
1 hat for €6.40
1 bag for €9.80

The exchange rate was £1 = €1.25.

(b)   Work out her **total** bill in pounds (£).

£ ....

(4)
(Total 6 marks)

Q4.   Given that   32 × 14 = 448

write down the value of

(a)   32 × 1.4

....

(1)

(b)   0.32 × 14

....

(1)

(c)   448 ÷ 320

....

(1)
(Total 3 marks)

Q5.   (a)   Use your calculator to work out the value of 2.58 × $\sqrt{2}$.

Write down all the figures on your calculator display.

....

(1)

(b)   Write your answer to part (a) correct to 1 decimal place.

....
(1)
(Total 2 marks)

Q6.   (a)   Use your calculator to work out $\dfrac{26.4 + 8.2}{\sqrt{5.76}}$ as a decimal.

Write down all the figures on your calculator display.

....
(2)

(b)   Write your answer to part (a) correct to 2 decimal places.

....
(1)
(Total 3 marks)

Q7.   Work out $\dfrac{3.4^2 - 2.6^2}{1.6}$.

....

(Total 2 marks)

Q8.
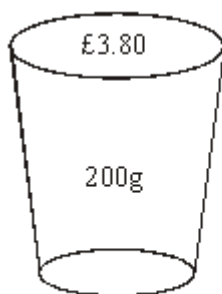
A Large tub of popcorn costs £3.80 and holds 200g.
A Regular tub of popcorn costs £3.50 and holds 175g.

Which is the better value for money?

....

(Total 3 marks)

Q9. Use your calculator to work out

$$\frac{\sqrt{6700} - 2.38^2}{3.6^2 + 5.71}$$

You must give your answer as a decimal.
Give your answer to three significant figures.

....

(Total 3 marks)

Q10. Mrs White wants to buy a new washing machine.

Three shops sell the washing machine she wants.

Clean Machines	**Electrics**	**Wash 'n' Go**
Washing machine	**Washing machine**	**Washing machine**
Buy now pay later!	$\frac{1}{4}$ off the usual price	£280

£50 deposit plus   of   plus

10 equal payments of £27   £420   VAT at $17\frac{1}{2}\%$

 Mrs White wants to buy the cheapest one.
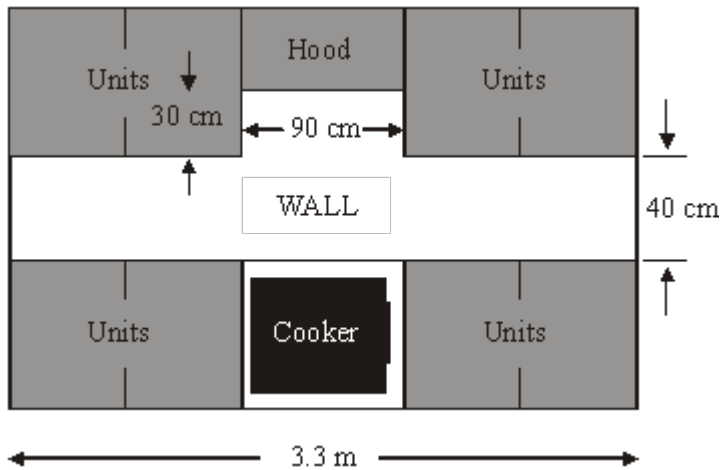She decides to buy her washing machine from one of these 3 shops.

 From which of these shops should she buy her washing machine?
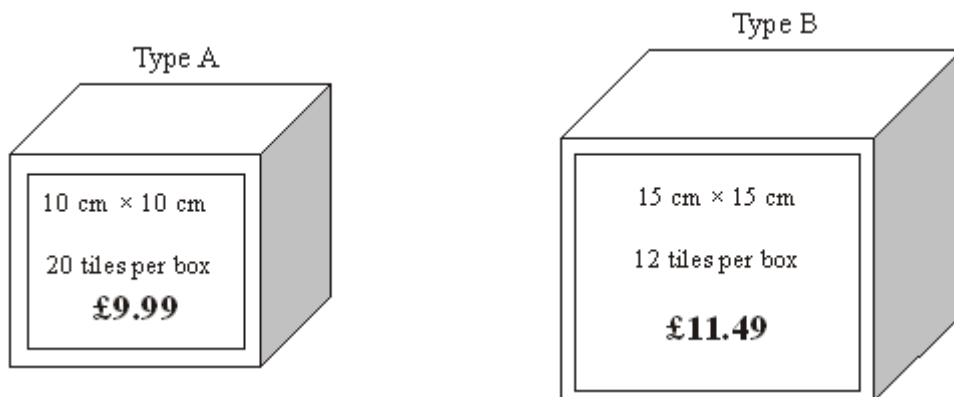You must show how you decided on your answer.

....

(Total 6 marks)

Q11.   The diagram shows a wall in Jenny's kitchen.

Diagram **NOT**
accurately drawn

Jenny wishes to tile this wall in her kitchen.
She chooses between the two types of tile shown below.

Type A

10 cm × 10 cm

20 tiles per box

£9.99

Type B

15 cm × 15 cm

12 tiles per box

£11.49

(a)   Which tiles should Jenny use to spend the least amount of money on tiling the wall?

You must show all of your working.

(6)

A Box of Type A tiles has dimensions 10.5 cm × 10.5 cm × 21 cm.
Readypac wants to produce cartons which hold 12 boxes of Type A tiles, when full.

(b)   On the grid below, design a net of a carton that Readypac could use.
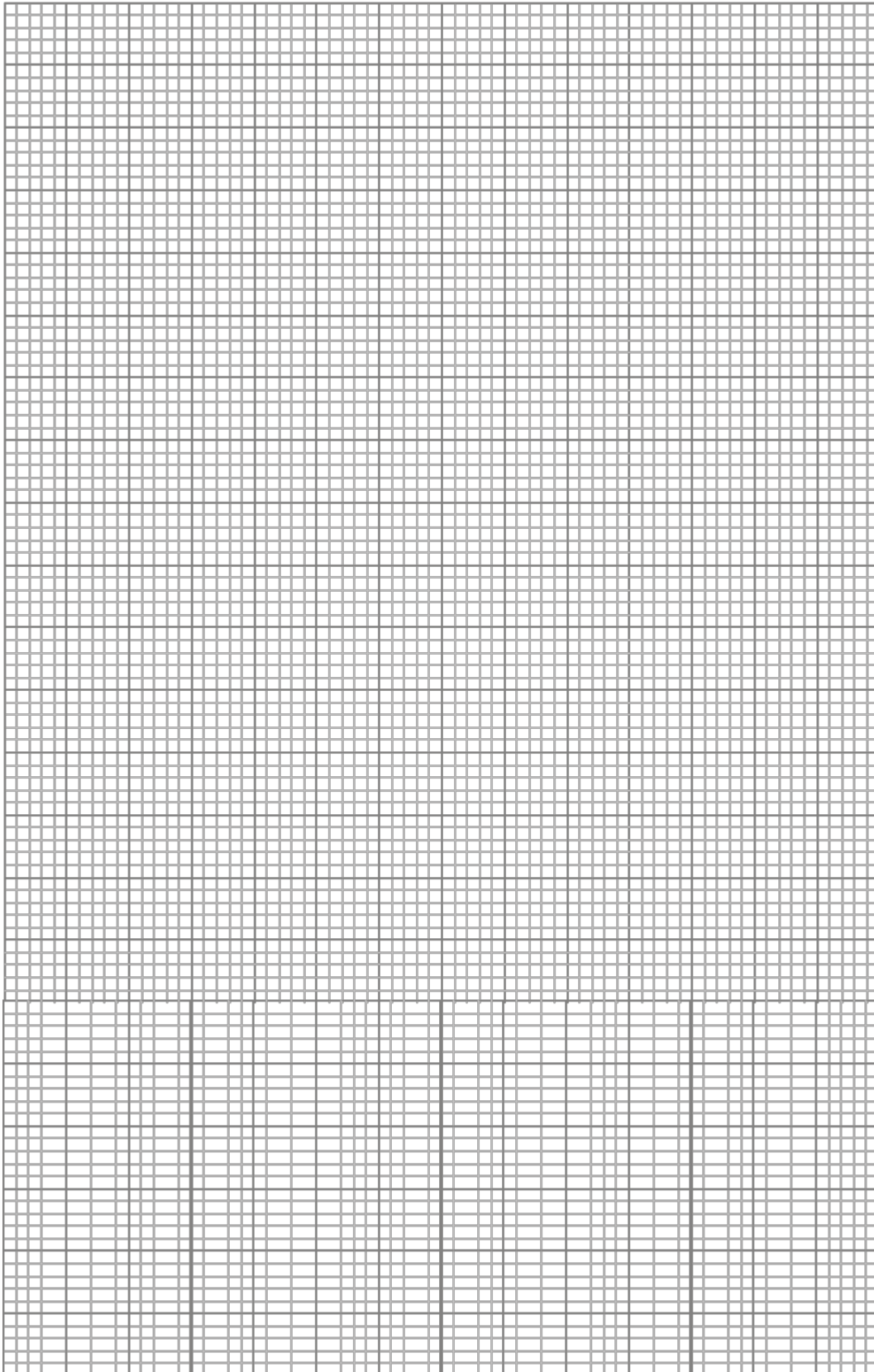
(3)
(Total 9 marks)

Q12.   Anwar, Bethany and Colin each earn the same weekly wage.

Each week, Anwar saves 12% of his wage and spends the rest.

Each week, Bethany spends $\frac{7}{8}$ of her wage and saves the rest.

The ratio of the money Colin saves each week to what he spends is 1 : 9
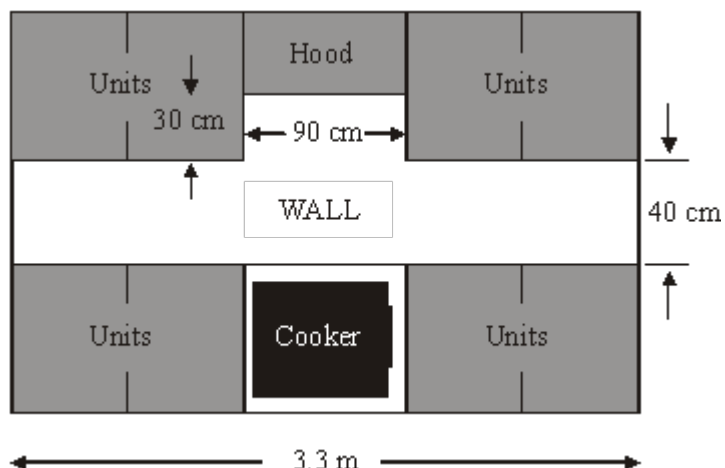
Which of Anwar, Bethany and Colin, saves the most money each week?
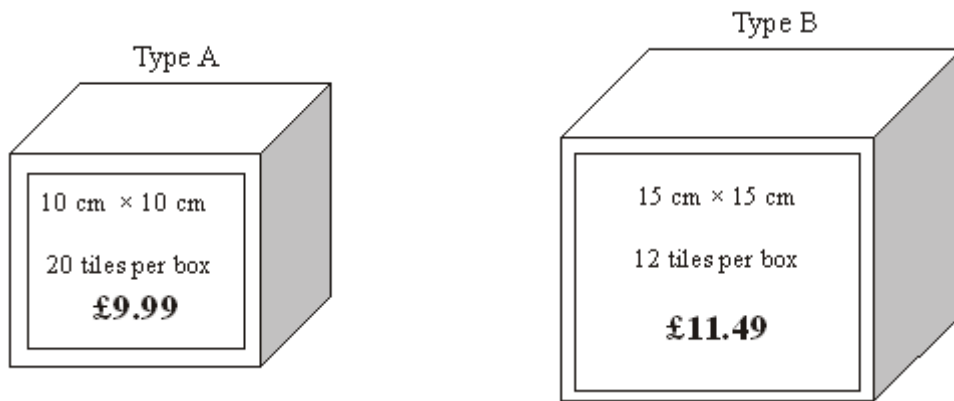You must show each stage of your working.

....

(Total 4 marks)

Q13.   The diagram shows a wall in Jenny's kitchen.

Diagram **NOT**
accurately drawn

Jenny wishes to tile this wall in her kitchen.
She chooses between the two types of tile shown below.

Type A

10 cm × 10 cm

20 tiles per box

£9.99

Type B

15 cm × 15 cm

12 tiles per box

£11.49

Which tiles should Jenny use to spend the least amount of money on tiling the wall?
You must show all of your working.

(Total 6 marks)

Q14. Kylie wants to invest £1000 for one year.
She considers two investments, Investment A and Investment B.

Investment A

£1000

Earns £2.39 per month

plus

£4.50 bonus for each complete year

Interest paid monthly by cheque.

Investment B

£1000

Earns 3.29% interest per annum

Interest paid yearly by cheque.

Kylie wants to get the greatest return on her investment.

Which of these investments should she choose?

(Total 5 marks)

Q15.　　　　Use your calculator to work out

$$\frac{22.4 \times 14.5}{8.5 \times 3.2}$$

Write down all the figures on your calculator display.

....

(Total 2 marks)

Q16.

Eiffel Tower

The table shows the cost of two different models of the Eiffel Tower.

Small	£2.40
Large	£4.50

Pierre buys 10 Small models, and 5 Large models.

He pays with a £50 note.

(a)   Work out how much change he should get.

£ ....

(3)

A different model of the Eiffel Tower is made to a scale of 2 millimetres to 1 metre.

The width of the base of the real Eiffel Tower is 125 metres.

(b)   Work out the width of the base of the model.
         Give your answer in millimetres.

.... mm

(2)

The height of the model is 648 millimetres.

(c)   Work out the height of the real Eiffel Tower.
         Give your answer in metres.

.... m

(2)
(Total 7 marks)

Q17.   Work out an estimate for $\dfrac{302 \times 9.96}{0.51}$

....

(Total 3 marks)

Q18.   Using the information that

$$4.8 \times 34 = 163.2$$

write down the value of

(a)   48 × 34

....

(1)

(b)   4.8 × 3.4

....

(1)

(c)   163.2 ÷ 48

....

(1)
(Total 3 marks)

Q19.   Jack invests £3000 for 2 years at 4% per annum compound interest.

Work out the value of the investment at the end of 2 years.

£ ....

(Total 3 marks)

Q20.   (a)   Work out $\dfrac{4.6 + 3.85}{3.2^2 - 6.51}$

Write down all the numbers on your calculator display.

....

(2)

(b)   Give your answer to part (a) correct to 1 significant figure.

....

(1)
(Total 3 marks)

Q21.   Tania went to Italy.
She changed £325 into euros (€).

The exchange rate was £1 = €1.68

(a)   Change £325 into euros (€).

€ ....
(2)

When she came home she changed €117 into pounds.

The new exchange rate was £1 = €1.50

(b)   Change €117 into pounds.

£ ....
(2)
(Total 4 marks)

Q22.   Use the information that

322 × 48 = 15 456

to find the value of

(a)   3.22 × 4.8

....
(1)

(b)   0.322 × 0.48

....
                                                                                (1)

(c)   15 456 ÷ 4.8

....
                                                                                (1)
                                                                                (Total 3 marks)

Q23.   Imran wants to work out how much tax he needs to pay.

Last year he earned £18 000

He does not pay Income tax on the first £6475 he earned.
He pays tax of 20 pence for each pound he earned above £6475

He pays the tax in two equal half-yearly instalments.

(a)   How much Income tax does Imran have to pay in his first half-yearly instalment?

....
                                                                                (4)

Imran wants to know what percentage of his earnings he pays in tax.

(b)   Calculate the Income tax Imran has to pay as a percentage of his earnings last
       year.

.... %

(2)
(Total 6 marks)

Q24.   Use your calculator to work out $\dfrac{\sqrt{13.2 - 6.8}}{3.25 + 4.9}$

Give your answer as a decimal.
Write down all the figures on your calculator display.

....

(Total 2 marks)

Q25.

Diagram **NOT**
accurately drawn

8 m

4 m

8 m

6 m
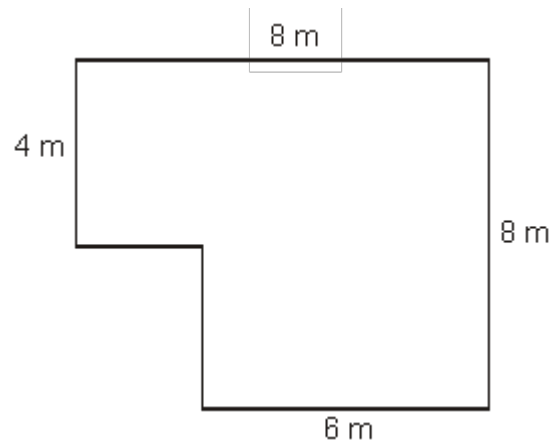
The diagram is a plan of the floor of Nikola's room.
All the angles are right angles.
Nikola is going to lay flooring to cover all the floor.

She can choose either carpet tiles or wood strips.

Carpet tiles come in packs of 32 and are square. They measure 50 cm by 50 cm.
Wood strips come in packs of 10 and are rectangular. They measure 2 m by 25 cm.

She only wants to use one type of flooring and buy as few packs as she can.
Which type of flooring should she choose?

....

(Total 6 marks)

M1.

Working	Answer	Mark	Additional Guidance
146 – 13.20 = 132.80 132.80 ÷ 8.30	16	3	**M1** for first step in a valid method eg 146 – 13.20 or sight of 132.8(0) **M1** for "132.80" ÷ 8.3 **A1** cao **Alternative 1 (repeated addition)** **M1** for repeated addition of 8.30 (at least twice) **M1** for 13.20 + repeated addition of 8.30 (at least 15 times) **A1** cao **Alternative 2 (repeated subtraction)** **M1** for repeated subtraction of 8.30 (at least twice) **M1** for repeated subtraction of 8.30 (at least 15 times with answers shown)
			Total for Question: 3 marks

M2.

Working	Answer	Mark	Additional Guidance
$= \sqrt{336.63}$	18.347….	2	**B2** for 18.347(47939) or $\dfrac{7\sqrt{687}}{10}$ (**B1** for 18.3… or 336.63 seen)
			Total for Question: 2 marks

M3.

	Working	Answer	Mark	Additional Guidance
(a)	300 × 1.25	375	2	**M1** for 300 × 1.25 **A1** cao
(b)	2 × 2.60 + 6.40 + 9.80 (= 21.4) "21.4" ÷ 1.25	£17.12	4	**M2** for 2 × 2.60 + 6.40 + 9.80 (= 21.4) (**M1** for 2.60 + 6.40 + 9.80 (= 18.8)) **M1** for "total" ÷ 1.25 **A1** cao **OR** **M1** for any value ÷ 1.25 (implied by at least one figure below) **M2** for "4.16" + "5.12" + "7.84" (**M1** for "2.08" + "5.12" + "7.84" (= 15.04)) **A1** cao SC: **B1** for 18.8 , **B2** for 15.04
				Total for Question: 6 marks

M4.

	Answer	Mark	Additional Guidance
(a)	44.8	1	**B1** for 44.8 cao
(b)	4.48	1	**B1** for 4.48 cao
(c)	1.4	1	**B1** for 1.4 cao
			Total for Question: 3 marks

M5.

	Working	Answer	Mark	Additional Guidance
(a)	$2.58 \times \sqrt{2} =$	3.648670991	1	**B1** for 3.648... cao
(b)		3.6	1	**B1** ft for "3.6"
				Total for Question: 2 marks

M6.

	Working	Answer	Mark	Additional Guidance
(a)	$\dfrac{26.4 + 8.2}{\sqrt{5.76}} = \dfrac{34.6}{2.4}$	14.4166(6667)	2	**B2** 14.4166(6667) accept $\dfrac{173}{12}$ or $14\dfrac{5}{12}$ or $14.41\dot{6}$ (**B1** for 34.6 or 2.4 seen)
(b)		14.42	1	**B1** ft from "14.4166…" assuming original is to 3 d.p. or more
				Total for Question: 3 marks

M7.

Working	Answer	Mark	Additional Guidance
$3.4^2 - 2.6^2 = 4.8$	3	2	**M1** for 3.4 × 3.4 – 2.6 × 2.6 with evidence of

4.8 ÷ 1.6 =			multiplication or 11.56 or 6.76 or 4.8 or 289/25 or 169/25 or 24/5 **A1** for 3 cao (SC **B1** for 7.335 or 1467/200)
			Total for Question: 2 marks

M8.

	Working	Answer	Mark	Additional Guidance
FE	380 ÷ 200 = 1.9 350 ÷ 175 = 2	Large by 0.1p per gram	3	**M1** for 380 ÷ 200 (= 1.9) or 200 ÷ 380 (= 0.526) **M1** for 350 ÷ 175 (= 2) oe or 175 ÷ 350 (= 0.5) oe **C1** for Large with correct calculations
				Total for Question: 3 marks

M9.

Working	Answer	Mark	Additional Guidance
	4.08	3	**B1** for 5.6644 or 81.8535(2772...) or 76.1(8912772...) or 18.67 **B1** for 4.08(0831694) **B1** cao
			Total for Question: 3 marks

M10.

	Working	Answer	Mark	Additional Guidance
QWC (ii, iii) **FE**	280 × 0.175 + 280 (= 329) 420 ÷ 4 (= 315) 50 + 10 × 27 (= 320)	£315, Electrics	6	**M1** for 50 + 10 × 27

					Total for Question: 6 marks

M11.

		Working	Answer	Mark	Additional Guidance
QWC (i, ii, iii) **FE**	(a)	Wall area = 330 × 40 + 90 × 30 = 13200 + 2700 = 15900 cm² Tile A area = 10 × 10 = 100 cm² No of tiles = 15900 ÷ 100 = 159 No of boxes needed = 8 (20 × 8 = 160 tiles) £9.99 × 8 = £79.92 Tile B area = 15 × 15 = 225 cm² No of tiles = 15900 ÷ 225 = 70(225 × 70 = 15700) + 1 No of boxes needed = 6 (12 × 6 = 72 tiles) but some tiles will need to be cut, so 7 boxes needed £11.49 × 7 = £80.43 **OR** 330 ÷ 10 = 33 A tiles per long row 40 ÷ 10 = 4 long rows 33 × 4 = 132 tiles 90 ÷ 10 = 9 tiles per short row 30 ÷ 10 = 3 short rows 9 × 3 = 27 tiles 132 + 27 = 159 tiles	Tile A is the most economical	6	**M1** for either 330 × 40 or 90 × 30 or 10 × 10 or 15 × 15 **A1** for 15900 and (100 or 225) **M1** for 15900 ÷ 100 or 15900 ÷ 225 **A1** ft for 10 A boxes needed ('15900' ÷ '100') ÷ 20 rounded up to nearest whole number) or 7 B boxes needed ('15900' ÷ '225') ÷ 12 rounded up to nearest whole number) **B1** for answers or £79.92 and £80.43 to justify the choice **C1** for comment on the need to cut some Type B tiles **QWC: Decision must be stated, with all calculations attributable** **OR** **M1** for 330 ÷ 10 or 90 ÷ 10 or 330 ÷ 15 or 90 ÷ 15 **A1** for (33 and 9) or (22 and 6) **M1** for 33 × 4 + 9 × 3 or 22 × 3 + 6 × 2 **A1** ft for 10 A boxes needed ('33 × 4' ÷ '9 × 3') ÷ 20 rounded up to nearest whole number) or for 7A boxes needed ('22 × 3' ÷ '6 × 2') ÷ 12 rounded up to nearest whole number)

		Working	Answer	Mark	Additional Guidance
		No of boxes needed = 8 (20 × 8 = 160 tiles) £9.99 × 8 = £79.92 330 ÷ 15 = 22 B tiles per long row 40 ÷ 15 = 3 long rows (1 row of tiles will be cut) 22 × 3 = 66 A tiles 90 ÷ 15 = 6 tiles per short row 30 ÷ 15 = 2 short rows 6 × 2 = 12 tiles 66 + 12 = 78 tiles No of boxes needed = 7 (12 × 7 = 84 tiles) £11.49 × 7 = £80.43			**B1** for answers or £79.92 and £80.43 to justify the choice **C1** for comment on the need to cut some Type B tiles **QWC: Decision must be stated, with all calculations attributable**
	(b)	The carton can have dimensions 42 cm × 31.5 cm × 21 cm or 63 cm × 21 cm × 21 cm or 84 cm × 31.5 cm × 10.5 cm or 63 cm × 42 cm × 10.5 cm or 126 cm × 21 cm × 10.5 cm	Net	3	**B1** for quoting a correct set of dimensions (could be simply on the diagram) **M1** for a net showing 6 rectangles that could form a cuboid **A1** for an accurate scale drawing or lengths labeled accurately
					Total for Question: 9 marks

M12.

Working	Answer	Mark	Additional Guidance

Bethany   4

	Total for Question: 4 marks

M13.

	Working	Answer	Mark	Additional Guidance
QWC **(ii, iii)** **FE**	330 ÷ 10 = 33 A tiles per long row 40 ÷ 10 = 4 long rows 33 × 4 = 132 tiles 90 ÷ 10 = 9 tiles per short row 30 ÷ 10 = 3 short rows 9 × 3 = 27 tiles 132 + 27 = 159 tiles No of boxes needed = 8 (20 × 8 = 160 tiles) £9.99 × 8 = £79.92 330 ÷ 15 = 22 B tiles per long row 40 ÷ 15 = 3 long rows (1 row of tiles will be cut) 22 × 3 = 66 A tiles 90 ÷ 15 = 6 tiles per short row 30 ÷ 15 = 2 short rows 6 × 2 = 12 tiles 66 + 12 = 78 tiles No of boxes needed = 7 (12 × 7 = 84 tiles) £11.49 × 7 = £80.43 **OR** Wall area = 330 × 40 + 90 × 30 = 13200 + 2700 = 15900 cm² Tile A area = 10 × 10 = 100 cm² No of tiles = 15900 ÷ 100 = 159 No of boxes needed = 8 (20 × 8 = 160 tiles) £9.99 × 8 = £79.92 Tile B area = 15 × 15 = 225 cm² No of tiles = 15900 ÷ 225 = 70(225 × 70 = 15700) + 1 No of boxes needed = 6 (12 × 6 = 72 tiles) but some tiles will need to be cut, so 7 boxes	Tile A is the most economical	6	**M1** for 330 ÷ 10 or 90 ÷ 10 or 330 ÷ 15 or 90 ÷ 15 **A1** for (33 and 9) or (22 and 6) **M1** for 33 × 4 + 9 × 3 or 22 × 3 + 6 × 2 **A1** ft for 10 A boxes needed ('33 × 4' ÷ '9 × 3') ÷ 20 rounded up to nearest whole number) or for 7A boxes needed ('22 × 3' ÷ '6 × 2') ÷ 12 rounded up to nearest whole number) **B1** for answers or £79.92 and £80.43 to justify the choice **C1** for comment on the need to cut some Type B tiles **QWC: Decision must be stated, with all calculations attributable** **OR** **M1** for either 330 × 40 or 90 × 30 or 10 × 10 or 15 × 15 **A1** for 15900 and (100 or 225) **M1** for 15900 ÷ 100 or 15900 ÷ 225 **A1** ft for 10 A boxes needed ('15900' ÷ '100') ÷ 20 rounded up to nearest whole number) or 7 B boxes needed ('15900' ÷ '225') ÷

needed £11.49 × 7 = £80.43		12 rounded up to nearest whole number) **B1** for answers or £79.92 and £80.43 to justify the choice **C1** for comment on the need to cut some Type B tiles **QWC: Decision must be stated, with all calculations attributable**
		Total for Question: 6 marks

M14.

	Working	Answer	Mark	Additional Guidance
QWC	2.39 × 12 + 4.5	33.18	5	**M1** for '2.39 × 12' + 4.5 or diagram showing 2.39, 4.78, 7.17, …, 28.68 oe (condone one error)
FE	3.29/100 × 1000	32.90		**A1** cao **M1** for 3.29/100 × 1000 oe **A1** cao **C1** for Investment A identified **QWC: Decision must be stated, with calculations clearly attributable**
				Total for Question: 5 marks

M15.

Working	Answer	Mark	Additional Guidance
$\dfrac{22.4 \times 14.5}{8.5 \times 3.2} = \dfrac{324.8}{27.2}$	11.94117647	2	**M1** for 324.8 or 27.2 oe eg $\dfrac{1624}{5}$, $\dfrac{136}{5}$ **A1** 11.941(17647…) Accept $\dfrac{203}{17}$, $11\dfrac{16}{17}$
			Total for Question: 2 marks

M16.

	Working	Answer	Mark	Additional Guidance
(a)	(2.40 × 10) + (4.50 × 5) = 24.00 + 22.50 = 46.50 50.00 – 46.50	3.50	3	**M1** (2.40 × 10) or (4.50 × 5) or sight of 24 or 22.5(0) **M1** (2.40 × 10) + (4.50 × 5) or sight of 24 + 22.5(0) or sight of 46.5(0) **A1** cao Accept 3.5
(b)	125 × 2	250	2	**M1** 125 × 2 **A1** cao
(c)	648 ÷ 2	324	2	**M1** 648 ÷ 2 **A1** cao
				Total for Question: 7 marks

M17.

Working	Answer	Mark	Additional Guidance

$\dfrac{300 \times 10}{0.5} = \dfrac{3000}{0.5}$	5890 – 6040	3	**M1** for any two of 300, 10 or 0.5 **M1** for $\dfrac{3000}{0.5}$ or 300 × 20 or 600 × 10 or $\dfrac{3020}{0.5}$ or 302 × 20 or 604 × 10 **A1** for 5890 – 6040 SC: **B2** for answer of 1500 or 1510
			Total for Question: 3 marks

M18.

	Working	**Answer**	**Mark**	**Additional Guidance**
(a)		1632	1	**B1** for 1632 or 1632.0
(b)		16.32	1	**B1** for 16.32 cao
(c)		3.4	1	**B1** for 3.4 cao
				Total for Question: 3 marks

M19.

Working	**Answer**	**Mark**	**Additional Guidance**
$3000 \times \dfrac{4}{100} + 3000 = 3120$ $3120 \times \dfrac{4}{100} + 3120 = 3244.80$	3244.80	3	**M1** for $3000 \times \dfrac{4}{100}$ or 120 or 240 **or** 3240 **or** 3120 **or** 1.04 × 3000 **or** 2880 **or** 2760 **M1**(dep) for (3000+'120') $\times \dfrac{4}{100}$

or $3000 \times \left(\dfrac{104}{100}\right)^2$			or 124.8(0) **or** "3120"$\times$1.04 **A1** £3244.8(0) **OR** $3000 \times \left(\dfrac{104}{100}\right)^2$ or $3000 \times \left(\dfrac{104}{100}\right)^3$ **M2** **A1** £3244.8(0) NB : If correct answer seen then ignore subsequent years
			Total for Question: 3 marks

M20.

	Working	**Answer**	**Mark**	**Additional Guidance**
(a)	4.6 + 3.85 = 8.45 3.2^2 – 6.51 = 3.73 8.45 ÷ 3.73 =	2.26541555	2	**M1** for $\dfrac{169}{20}$ or $\dfrac{256}{25}$ or $\dfrac{373}{100}$ or 3.73 or 10.24 or 8.45 seen **A1** for 2.265(41555); accept $\dfrac{845}{373}$
(b)		2	1	**B1** ft for 2 or follow through their answer to part (a) NB: 2.0 gets **B0**
				Total for Question: 3 marks

M21.

	Working	**Answer**	**Mark**	**Additional Guidance**

(a)	325 × 1.68	546	2	**M1** for 325 × 1.68 seen or digits 546 **A1** for 546, accept 546.00, 546.0
(b)	117 ÷ 1.5	78	2	**M1** for 117 ÷ 1.5 seen or digits 78 **A1** for 78, accept 78.00, 78.0
				Total for Question: 4 marks

M22.

	Answer	Mark	Additional Guidance
(a)	15.456	1	**B1** cao
(b)	0.15456	1	**B1** cao
(c)	3220	1	**B1** cao
			Total for Question: 3 marks

M23.

	Working	Answer	Mark	Additional Guidance
(a)	18000 – 6475 = 11525 $11525 \times \dfrac{20}{100} = 2305$	£1152.50	4	**M1** 18000 – 6475 **A1** 11525

(b) $\dfrac{'2305'}{18000} \times 100$ | 12.8 | 2

$\dfrac{'2305'}{18000} \times 100$

			Total for Question: 6 marks

M24.

Working	Answer	Mark	Additional Guidance
$\dfrac{\sqrt{6.4}}{8.15}$	0.31040762...	2	**M1** correct order of evaluation as evidenced by sight of 6.4 or 8.15 **A1** 0.31040(762….)
			Total for Question: 2 marks

M25.

	Working	Answer	Mark	Additional Guidance
FE	Area of the room = 4 × 8 + 4 × 6 = 56 Area of a tile = 0.5 × 0.5 = 0.25 Number of tiles = 56 ÷ 0.25 = 224 Cost = 4 × 224 **OR** No of tiles around room = 2 × lengths of room = 8, 16, 16, 12	£ 896	6	**M1** for full method for finding the area of the room **A1** at least one area correct **B1** for area of tile = 0.25m^2 or 2500 cm^2 or 4 tiles = 1m^2 **M1** for area of room ÷ area of a tile **M1** for 4 × number of tiles **A1** cao **OR** **M1** for doubling each length to show

Total number of tiles = 8 × 16 + 8 × 12 = 224 Cost = 4 × 224		number of tiles for each side **B1** for 8, 16, 16 and 12 **M1** for a full method of finding the number of tiles (12 × 16 + 8 × 4) **A1** for at least one 'section' correct **M1** for 4 × '224' **A1** cao
		Total for Question: 6 marks

E1.   This question was well understood and a surprising 65% of candidates obtained the fully correct answer of 16. Many candidates tried unsuccessfully with repeated addition or subtraction methods and did gain some marks for incorrect answers. The least successful solutions were for those candidates who tried trial and improvement solutions as they usually forgot the adult ticket price was different to the child ticket price. 26% of candidates scored no marks.

E2.   Foundation

This question was very poorly answered even though it was testing the use of a calculator on a calculator paper. The modal answer was for finding the square root of 12.63 and then adding the square of 18. Another group of candidates calculated 12.63 + 18² but then did not square root their answer. Unfortunately these answers were incorrect. Only 18% of candidates gave the fully correct answer whilst a further 11% gained 1 mark usually for calculating 336.63 or writing the answer as 18.3 rather than giving all the figures on their calculator display as required.

Higher

The great majority of candidates either scored full marks for a correct answer or no marks for evaluating $\sqrt{2.63}$ + 18³ rather than the expression given. Most of the candidates who failed to gain any marks wrote an answer down without any intermediate working. If they had written down some working they may have given thought to the order of operations required. Despite the instruction to write down all the figures from the calculator display, a significant proportion of candidates went on to round their answer. Further rounding was ignored if candidates had written the full

version in the working space. Some calculators give the answer in the form $\frac{7\sqrt{687}}{10}$. This was accepted. In this question, the first on the paper, 59% of candidates were awarded 2 marks, but 33% of candidates could not be awarded any marks.

E3. There were many correct answers in part (a), the only common error to divide rather than multiply. The greatest error in part (b) was in not reading the question. There were far too many candidates who neglected to include **two** necklaces in their calculations. Those who chose to work out the total, or do the conversion first were equally split, with similar problems of operator as indicated for part (a).

E4. This question was not well understood with few candidates gaining all three marks. Candidates gained most success with part (b) whilst part (c) was only seldom answered correctly. A surprising number of candidates tried to use long multiplication methods to find the answer, often with little success.

E5. A poorly answered question with many candidates not gaining the mark for (a) but picking up the mark in (b) for writing their answer to (a) correct to one decimal place. A frequent response to (a) was to write the square root of 2 as the answer.

E6.   Foundation

This question was poorly attempted by all candidates with only 18% of candidates able to give the correct answer in (a). Many answers seen here, the most common being 29.8166666... or 6.00694… which were incorrect. A method mark for 34.6 and/or 2.4 was often gained in part (a) but working was frequently not shown. In part (b) the understanding of writing to 2 decimal places was poorly attempted.

Many candidates truncated their answer some gave their answer to 2 significant figures and a large number moved the decimal point 2 places (left or right). Only 8% of candidates were able to gain full marks on the whole question the style of which is quite common.

Higher

This question was not that well attempted on this higher paper with only 49% of candidates able to give the correct answer in (a). Many answers were seen here, the most common being 29.8166666… or 6.00694… which were incorrect. A method mark for 34.6 and/or 2.4 was often gained in part (a) but working was frequently not shown.

In part (b) the understanding of writing to 2 decimal places too was poorly attempted. Many candidates truncated their answer some gave their answer to 2 significant figures and a large number moved the decimal point 2 places (left or right). It was interesting to note that 29% of candidates scored only 1 mark or no marks on this question which appears regularly on this paper.

E7.   Foundation

Almost one third of candidates answered this question successfully, many of whom did not show any working. The question was a good discriminator and many candidates who did not give the correct answer were awarded 1 mark for demonstrating that they could correctly evaluate at least one of "3·4²" or "2·6²". Perhaps, not surprisingly, many candidates failed to ensure that the numerator was fully evaluated, either by using the brackets function on their calculator or by writing down intermediate working, before dividing by 1·6. Of the 48% of candidates who could not be awarded any marks, most multiplied by 2 rather than squaring or worked out "3·4 – 2·6" rather then "3·4² – 2·6²". These errors usually lead to the incorrect answers "1" and "0·5".

Higher

This question was answered well with 72% of the candidates being awarded full marks. Some candidates did not evaluate the numerator before performing division by 1·6. The evidence suggests that these candidates had not realised the need to use the brackets keys on their calculator or to record intermediate working. A generous mark scheme enabled the candidates to gain one mark for correctly evaluating at least one of 3·4² and 2·6².

E15.   Foundation

There were some good attempts at this question, with many candidates gaining full marks. A significant number of candidates worked the numbers out using the wrong order (usually getting 122.27), or put the decimal point into their answer in the wrong place. Despite the direction to "write down all the figures…" some candidates still wrote their answers rounded or truncated. Those without calculators would have found this question difficult.

Higher

Most candidates knew that they had to work out the numerator and the denominator separately or that they had to use brackets when dividing by the expression in the denominator. The vast majority of candidates gave enough figures in their answer to earn full marks for the question. The most common incorrect answer started with 122.2… and was awarded no marks if no interim working had been shown.

E16.   Most candidates gained full marks in part (a), though those attempting the question by non-calculator methods rarely gained the full marks due to numerical errors in their calculations. Of those using calculators a common error was to write down and use £22.05 instead of £22.50. A significant number stopped after having found the total cost and failed to find the change.

In parts (b) and (c) about half the candidates gained the marks. It was usually a choice between dividing and multiplying, with many accepting answers which were numerical incorrect given the context. Some candidates lost marks due to their confusion over the units being used.

E17.   **Foundation**

Very few candidates gained full marks for this question. Many were able to round 302 and 9.96 to 300 and 10 respectively but the denominator of 0.51 was often rounded to 1 or somehow became 50. Sadly, the majority of those candidates who did get as far as 3000/0.5 were unable to evaluate this as 6000. Most chose to divide by 2 so that 1500 and 1510 were very common incorrect answers. Too many candidates failed to recognise the need to approximate and embarked on long multiplication and then division in the search for an answer.

Higher

The vast majority of candidates were able to score at least one mark in this question but less than half managed to get full marks. Common errors were to round 0.51 to 1 (leading to an answer of 3000) and to calculate 3000/0.5 as 1500 (common) or 4500. A significant number of candidates did not round 302 to 300, but were still able to gain full marks for 6040. Candidates should be advised to round all numbers to one significant figure when doing an approximation.

E18.   Foundation

Many candidates were successful in part (a). Slightly fewer gave the correct answer in part (b) and a common error was for 163.2, instead of 16.32, to be given. Part (c) was answered least well. Here, a very common incorrect answer was 34. A significant number of candidates did not use the information given at the start of the question and attempted to work out each calculation from scratch. These attempts almost invariably failed.

Higher

This question was done well by the vast majority of the candidates. A small number of candidates tried to do the various calculations rather than use the information provided, but few of these attempts resulted a correct answer. Common incorrect answers in part (c) were 34 and (more rarely) 340.

E19.   Around 30% of candidates used simple interest only and therefore gained 1 mark out of the 3 available; 3120 and 6240 were common incorrect answers. A significant number of candidates could not work out 4% of 3000, 24% of candidates failed to gain any marks in this question.

E20.   The advice given to many candidates is to calculate the numerator and denominator separately before dividing to get the final answer.

This advice was ignored by many candidate who just put the numbers into their calculator in the order given in the question and hoped for the best, which was usually no marks as a result. A significant number doubled 3.2 rather than squaring. In part (b) most students did not understand what 1 significant figure meant, and gave their answer to 1dp instead. Many who gave a negative answer in (a) rounded their answer to a positive answer in (b).

E21.   Specification A

Foundation

The majority of candidates gained full marks for this question. The main misconception was in the operations required, and it was not uncommon to find candidates applying the operations the wrong way around in (a) and (b). Again the absence of a calculator was an inhibitor, leading to complex multiple addition and subtraction methods which rarely gained any marks.

Higher

The majority of students gained full marks on this question. Many however multiplied when they should have divided and vice versa.

Candidates need to be encouraged to write out their working as too many merely gave answer only solutions, some of which you suspect, but without any evidence, were copying errors e.g. £564 in(a) or £87 in (b). Some candidates used repeated addition in (a) rather than multiplication.

Specification B

Foundation

Converting from pounds sterling to euros and the reverse seemed to be well within the experience of the students with nearly half the candidates changing both values correctly.

It appeared to come down to knowing whether to multiply or divide. In part (a) writing down 325 × 1.68 helped to reinforce the fact they would be getting numerically more euros than the pounds they were exchanging.

Similar thinking applied in part (b) gave rise to a division. However, there did appear to be more correct answers to part (b) than part (a).

Higher

This was a standard currency exchange question and it was pleasing to see so many candidates carry put the correct operation s and get the correct answer. There were a few candidates who did the operations the wrong way round for the two parts but they were in a small minority. A few candidates did not read the second part carefully enough and divided by the currency rate from the first part.

E22.   Foundation

In part (a), 57% gave the correct answer. Parts (b) and (c) were less well done, with incorrect positioning of the decimal point accounting for the majority of the errors made.

Higher

Part (a) was answered correctly by about 90% of the candidates and almost 70% were successful in part (b). Many of those who answered (b) incorrectly did not appreciate that the answer had to be less than 1. Part (c) proved to be the most difficult with about half of the candidates giving the correct answer. The most common incorrect answer in this part was 32.20.