



## Unit 2 Revision Sheet A Number Foundation & Higher

### Questions

**Q1.**

Gladys buys a table for \$465 to sell in her shop.

She sells the table for \$520

- (a) Work out the percentage profit that Gladys makes from the sale of the table.  
Give your answer correct to 3 significant figures.

(3)

Gladys has a sale in her shop.

She decreases all the normal prices by 12%

The normal price of an armchair was \$550

- (b) Work out the sale price of the armchair.

(3)

**(Total for question = 6 marks)**

**Q2.**

Chengbo sold a house for 180 000 yuan.

The amount for which he sold the house is 24% more than the amount he paid for the house.

- (a) Work out how much Chengbo paid for the house.  
Give your answer correct to 3 significant figures.

(3)

Zhi bought a house on 1<sup>st</sup> January 2017

When she bought the house, its value was 120 000 yuan.

The value of the house increased by 1.8% per year.

- (b) Work out the value of Zhi's house on 1<sup>st</sup> January 2020  
Give your answer correct to 3 significant figures.

(3)

**(Total for question = 6 marks)**



**Q3.**

The people working for a company work in Team A or in Team B.

number of people in Team A : number of people in Team B = 3 : 4

4

5 of Team A work full time.

24% of Team B work full time.

Work out what fraction of the people working for the company work full time.  
Give your fraction in its simplest form.

**(Total for question = 3 marks)**

**Q4.**

In 2018, the population of Sydney was 5.48 million.  
This was 22% of the total population of Australia.

Work out the total population of Australia in 2018  
Give your answer correct to 3 significant figures.

**(Total for question = 3 marks)**

**Q5.**

(a) Express 180 as a percentage of 750

(2)

Zaina has booked a singer for a show.  
The singer will get 94% of the total money from the ticket sales.

The cost of each ticket for the show is 32.50 dirhams.  
Zaina sells 180 tickets.

(b) Work out the amount of money the singer will get.

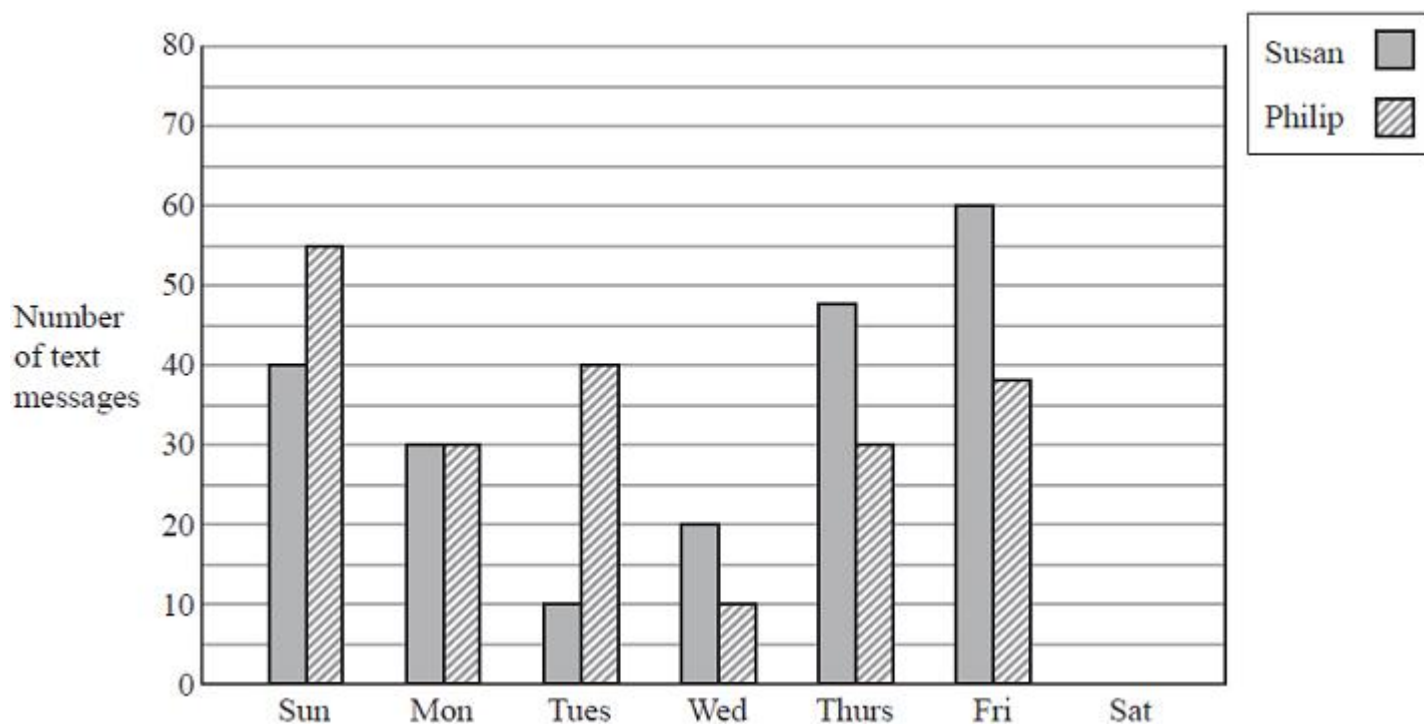
(3)

**(Total for question = 5 marks)**



**Q6.**

The bar chart shows information about the numbers of text messages that Susan and Philip sent from their mobile phones on each of six days one week.



(a) On which day did Susan send twice as many text messages as Philip?

(1)

(b) How many text messages did Philip send on Sunday?

(1)

On Saturday, Susan sent 15 text messages and Philip sent 40 text messages.

(c) Show this information on the bar chart.

(1)

In the following week, Philip sent a total of 180 text messages.  
Of these text messages, 25% were sent to Susan.

(d) Work out 25% of 180

(2)

**(Total for question = 5 marks)**



**Q7.**

Mariana sells bags of bird food.

The bags that Mariana sold last week each contained 12 kg of seeds.

The bags that she is going to sell next week will each contain a mixture of nuts and seeds where for each bag

$$\text{weight of nuts} : \text{weight of seeds} = 4 : 5$$

The total weight of the nuts and the seeds in each bag will be 19.35 kg

The weight of seeds in each bag that Mariana sells next week will be less than the weight of seeds in each bag that Mariana sold last week.

Work out this decrease as a percentage of the weight of seeds in each bag that Mariana sold last week. Give your answer correct to one decimal place.

**(Total for question = 4 marks)**

**Q8.**

Chen invests 40 000 yuan in a fixed-term bond for 3 years.

The fixed-term bond pays compound interest at a rate of 3.5% each year.

- (a) Work out the value of Chen's investment at the end of 3 years.  
Give your answer to the nearest yuan.

(3)

Wang invested  $P$  yuan.

The value of his investment decreased by 6.5% each year.

At the end of the first year, the value of Wang's investment was 30 481 yuan.

- (b) Work out the value of  $P$ .

(3)

**(Total for question = 6 marks)**

**Q9.**

In Koko's shop

5 chocolate bars cost \$5.75

2 chocolate bars and 3 packets of sweets cost \$7.85

Work out the cost of one packet of sweets.

**(Total for question = 3 marks)**



**Q10.**

(a) Write these fractions in order of size.

Start with the smallest fraction.

$$\frac{3}{8} \quad \frac{1}{4} \quad \frac{7}{20} \quad \frac{5}{16}$$

(2)

There are only green beads and red beads in a bag.

The ratio of the number of green beads to the number of red beads is 5 : 9

(b) What fraction of the beads in the bag are green beads?

(1)

**(Total for question = 3 marks)**

**Q11.**

Pieter owns a currency conversion shop.

Last Monday, Pieter changed a total of 20 160 rand into a number of different currencies.

He changed  $\frac{3}{10}$  of the 20 160 rand into euros.

He changed the rest of the rands into dollars, rupees and francs in the ratios 9 : 5 : 2

Pieter changed more rands into dollars than he changed into francs.

Work out how many more.

**(Total for question = 4 marks)**

**Q12.**

On a farm there are chickens, ducks and pigs.

The ratio of the number of chickens to the number of ducks is 7 : 2

The ratio of the number of ducks to the number of pigs is 5 : 9

There are 36 pigs on the farm.

Work out the number of chickens on the farm.

**(Total for question = 3 marks)**



**Q13.**

Louis makes a model of a plane.

The wingspan of the model is 50 centimetres.

The wingspan of the real plane is 80 metres.

(a) Work out the scale of the model.

Give your answer in the form 1:  $n$

(2)

The length of the real plane is 72 metres.

(b) Work out the length of the model.

Give your answer in centimetres.

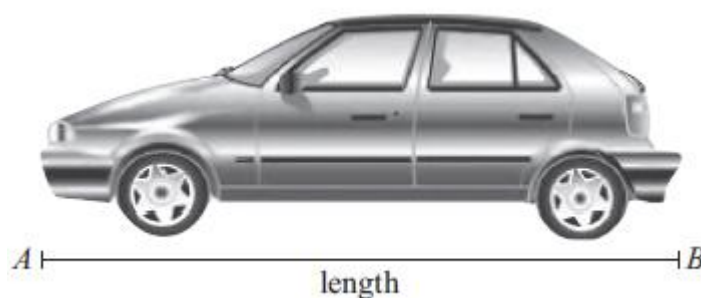
(2)

**(Total for question = 4 marks)**

**Q14.**

Here is a scale drawing of a car.

The line  $AB$  represents the length of the car.



(a) Measure the length, in centimetres, of the line  $AB$ .

(1)

(b) On the drawing, 2 centimetres represents a real length of 1 metre.

Work out the real length of the car.

(2)

**(Total for question = 3 marks)**



**Q15.**

Paolo has a bag of flour.  
The flour in the bag has a weight of 3 kilograms.

Paolo makes 8 pies using the flour in the bag.

3 of the pies each need 150 grams of the flour.  
5 of the pies each need 180 grams of the flour.

Work out the weight of flour that remains in the bag when Paolo has made these pies.  
Give your answer in grams.

**(Total for question = 3 marks)**

**Q16.**

120 children go on an activity holiday.  
The ratio of the number of girls to the number of boys is 3 : 5

On Sunday, all the children either go sailing or go climbing.

$\frac{16}{25}$  of the boys go climbing.

Twice as many girls go sailing as go climbing.

Work out how many children go sailing on Sunday.

**(Total for question = 6 marks)**

**Q17.**

Here is a list of the ingredients needed to make leek and potato soup for 6 people.

Leek and Potato Soup
Ingredients for 6 people
900 ml chicken stock
900 ml water
750 g leeks
350 g potatoes
350 g onions



(a) Find the ratio of the weight of leeks to the weight of potatoes.

Give your ratio in its simplest form.

(2)

(b) Ainsley wants to make leek and potato soup for 13 people.

Work out the amount of chicken stock he needs.

(2)

(c) Delia makes leek and potato soup for a group of people.

She uses 1250 g of leeks.

Work out the number of people in the group.

(2)

**(Total for question = 6 marks)**

**Q18.**

The table shows the population, correct to two significant figures, of each of six countries in April 2016.

Country	Population (April 2016)
Hungary	$9.8 \times 10^6$
Mexico	$1.3 \times 10^8$
Thailand	$6.8 \times 10^7$
Nigeria	$1.9 \times 10^8$
Singapore	$5.7 \times 10^6$
Egypt	$9.3 \times 10^7$

(a) Write  $9.3 \times 10^7$  as an ordinary number.

(1)

(b) Which of these countries had the least population?

(1)

The population of China was  $1.382 \times 10^9$  in April 2016.

The population of India was  $1.327 \times 10^9$  in April 2016.

(c) Work out the difference between the population of China and the population of India in April 2016.  
Give your answer in standard form.

(2)

**(Total for question = 4 marks)**





**Q19.**

**Write your answers in the spaces provided.**

**You must write down all the stages in your working.**

The table shows the volumes, in  $\text{km}^3$ , of four oceans.

Ocean	Volume ( $\text{km}^3$ )
Arctic Ocean	$1.88 \times 10^7$
Atlantic Ocean	$3.10 \times 10^8$
Indian Ocean	$2.64 \times 10^8$
Southern Ocean	$7.18 \times 10^7$

(a) Write  $7.18 \times 10^7$  as an ordinary number.

(1)

(b) Calculate the total volume of these four oceans.

(2)

The volume of the South China Sea is 9 880 000  $\text{km}^3$

(c) Write 9 880 000 in standard form.

(1)

**(Total for question = 4 marks)**

**Q20.**

(a) Write  $5.7 \times 10^6$  as an ordinary number.

(1)

(b) Write 0.004 in standard form.

(1)

(c) Work out  $\frac{2 \times 10^4 + 3 \times 10^5}{6.4 \times 10^{-2}}$

(2)

**(Total for question = 4 marks)**



**Q21.**

- (a) Write  $7.8 \times 10^{-4}$  as an ordinary number.

(1)

- (b) Work out  $\frac{5.6 \times 10^4 + 7 \times 10^3}{2.8 \times 10^{-3}}$

Give your answer in standard form.

(2)

**(Total for question = 3 marks)**

**Q22.**

- (a) Write down all the factors of 9

(1)

- (b) Find the lowest common multiple (LCM) of 15 and 70

(2)

**(Total for question = 3 marks)**

**Q23.**

- (a) Find the highest common factor (HCF) of 28 and 70

(2)

- (b) Find the lowest common multiple (LCM) of 28 and 105

(2)

**(Total for question = 4 marks)**

**Q24.**

$$A = 2 \times 3^{43}$$

$$B = 16 \times 3^{37}$$

- (a) Find the highest common factor (HCF) of  $A$  and  $B$ .

(1)

- (b) Express the number  $A \times B$  as a product of powers of its prime factors.

Give your answer in its simplest form.

(2)

**(Total for question = 3 marks)**



## Mark Scheme

Q1.

Q	Working	Answer	Mark	Notes	
(a)	$520 - 465 (= 55) \text{ or } \frac{520}{465} (=1.118\dots)$	11.8	3	M1	
	$\frac{55}{465} \times 100 \text{ or } 100 \times ("1.118" - 1) \text{ oe}$			M1	
				A1 11.8 or better (11.827956...)	
(b)	$0.12 \times 550 (= 66)$	484	3	M1 oe	M2 for $0.88 \times 550$
	$550 - "66"$			M1	
				A1	
				Total 6 marks	



Q2.

Q	Working	Answer	Mark	Notes	
(a)	eg $100 + 24 (=124 [\%])$ or $1 + 0.24 (= 1.24)$ or $\frac{180000}{124} (=1451.6\dots)$		3	M1	
	eg $180\,000 \div 1.24$ $180\,000 \div 124 \times 100$ or $180\,000 \times 100 \div 124$ oe			M1 for a complete method	
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>  <i>NB: this question is one where students could misread the number of zeros (eg one too many or one too few) in the question, up to M2 could be awarded if a correct method is seen with this misread</i>	145 000		A1 accept 145 000 – 145 200 (if a correct answer is seen in working and then rounded incorrectly, award full marks) (if no marks awarded, SCB1 for 223 200 or 223 000)	
(b)	for $0.018 \times 120\,000$ oe or 2160 or $1.018 \times 120\,000$ oe or 122 160		3	M1 For finding 1.8% or 101.8% of the value	OR M2 for $120\,000 \times 1.018^3$ or $120\,000 \times 1.018^4$ or 128 876.09
	$1.018 \times "122\,160" (= 124\,358.88)$ oe and $1.018 \times "124\,358.88" (= 126\,597.34)$ oe			M1 for completing the method	(M1 for $120\,000 \times 1.018^2$ or 124 358.88)
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>  <i>NB: this question is one where students could misread the number of zeros in 120 000 (eg one too many or one too few) in the question, up to M2 could be awarded if a correct method is seen with this misread</i>	127 000		A1 or 126 597 – 126 600 (if a correct answer is seen in working and then rounded incorrectly, award full marks) SC: if no other marks gained award M1 for $1.054 \times 120\,000$ oe or 126 480 or 6480  accept $(1 + 0.018)$ as equivalent to 1.018 throughout	
				Total 6 marks	



Q3.

Q	Working	Answer	Mark	Notes
	$\text{eg } \frac{4}{5} \times \frac{3}{7} (= \frac{12}{35}) \text{ oe or } 0.24 \times \frac{4}{7} (= \frac{96}{700}) \text{ oe or}$ $\text{eg } \frac{4}{5} \times 3 (= \frac{12}{5} = 2.4) \text{ and } 0.24 \times 4 (= \frac{24}{25} = 0.96) \text{ (or 3.36)}$ <b>or</b> $\text{eg } \frac{4}{5} \times 300 (= 240) \text{ and } 0.24 \times 400 (= 96) \text{ (or 336)}$		3	M1
	$\text{eg } \frac{12}{35} + \frac{96}{700} \left( = \frac{336}{700} \right) \text{ oe or}$ $\frac{2.4 + 0.96}{3 + 4} \left( = \frac{3.36}{7} \right) \text{ oe or}$ $\text{eg } \frac{240 + 96}{300 + 400} \left( = \frac{336}{700} \right) \text{ oe}$			M1 or 0.48 or 48% or correct unsimplified  fraction eg $\frac{84}{175}$
		$\frac{12}{25}$		A1 cao
				<b>Total 3 marks</b>

Q4.

Q	Working	Answer	Mark	Notes
	$0.22x = 5.48 \text{ oe or}$ $(1\% \Rightarrow) 5.48 \div 22 (= 0.24909...) \text{ or}$ $100 \div 22 (= 4.54...)$			M1
	$(x \Rightarrow) 5.48 \div 0.22 \text{ oe or}$ $(100\% \Rightarrow) 5.48 \div 22 \times 100 \text{ or}$ $"0.24909..." \times 100 \text{ or}$ $5.48 \times "4.54..."$			M1
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	24.9		A1 awrt 24.9
				<b>Total 3 marks</b>



Q	Working	Answer	Mark	Notes
ALT 1	$0.22x = 5\,480\,000$ oe or (1% $\Rightarrow$ ) $5\,480\,000 \div 22 (= 249\,090.9091\dots)$ or $100 \div 22 (= 4.54\dots)$			M1
	$5\,480\,000 \div "0.22"$ oe or (100% $\Rightarrow$ ) $5\,480\,000 \div 22 \times 100$ or " $249\,090.9091\dots$ " $\times 100$ or $5\,480\,000 \times "4.54\dots"$			M1
	<i>Correct answer scores full marks (unless from obvious incorrect working)</i>	24 900 000		A1 awrt 24 900 000
				<b>Total 3 marks</b>

Q5.

Q	Working	Answer	Mark	Notes
(a)	e.g. $\frac{180}{750} \times 100$ oe or $0.24 \times 100$		2	M1 for a complete method
		24		A1
(b)	e.g. $32.50 \times 180 (= 5850)$ or e.g. $0.94 \times 32.50$ oe ( $= 30.55$ )		3	M1 for finding the total income or 94% of the cost of one ticket
	e.g. $0.94 \times "5850"$ oe or " $5850$ " $- 0.06 \times "5850"$ oe or $180 \times "30.55"$			M1 for a complete method
		5499		A1
				<b>Total 5 marks</b>





**Q6.**

Question	Working	Answer	Mark	Notes
(a)		Wednesday	1	B1 Accept Wed
(b)		55	1	B1
(c)		Correct Bars	1	B1 Susan 1.5 cm, Philip 4 cm (and having the correct key)
(d)	$\frac{25}{100} \times 180$ or $0.25 \times 180$ or $180 \div 4$ oe		2	M1
		45		A1
Total 5 marks				

**Q7.**

Q	Working	Answer	Mark	Notes	
	$19.35 \div (4 + 5) (= 2.15)$		4	M1	M2 for $\frac{5}{9} \times 19.35 (= 10.75)$
	"2.15" $\times 5 (= 10.75)$			M1	
	$\frac{12 - "10.75"}{12} \times 100$ oe or $100 - \frac{10.75 \times 100}{12}$ oe			M1	
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	10.4		A1	accept 10.4 – 10.42  SCB1 for $\frac{5}{9} \times 12 (= 6.66...) \text{ oe}$
Total 4 marks					



**Q8.**

Q	Working	Answer	Mark	Notes
(a)	for $0.035 \times 40\,000$ oe (= 1400) or $1.035 \times 40\,000$ oe (= 41 400)		3	M1 for finding 3.5% or 103.5% of 40 000
	$1.035 \times$ “41 400” oe (= 42 849) $1.035 \times$ “42 849” oe (= 44 348.72) OR $40\,000 \times 1.035^3$			M1 for completing method to find total amount in the account
		44 349		A1 accept 44 348 – 44 349
				SC: if no other marks gained award M1 for $0.105 \times 40\,000$ oe or 4200 or 44 200  accept $(1 + 0.035)$ as equivalent to 1.035 throughout
(b)	e.g. $30\,481 \div (1 - 0.065)$ or $30\,481 \div 0.935$		3	M2 for a complete method  (M1) for $30\,481 \div (100 - 6.5)$ (= 326) or $(100 - 6.5)\% = 30\,481$ or $93.5\% = 30\,481$ or e.g. $(1 - 0.065)x = 30\,481$
		32 600		A1
				<b>Total 6 marks</b>

**Q9.**

Q	Working	Answer	Mark	Notes
	$5.75 \div 5$ (= 1.15)		3	M1 for finding the cost of one chocolate bar
	e.g. $(7.85 - 2 \times “1.15”) \div 3$			M1 (dep on M1) for a complete method to find the cost of one packet of sweets
		1.85		A1 cao
				<b>Total 3 marks</b>





**Q10.**

Q	Working	Answer	Mark	Notes
(a)	<p><i>For information</i></p> $\frac{3}{8} = \frac{30}{80} = 0.375 \text{ or } 0.38$ <p>or 37[.5%] or 38[%]</p> $\frac{1}{4} = \frac{20}{80} = 0.25 \text{ or } 25[\%]$ $\frac{7}{20} = \frac{28}{80} = 0.35 \text{ or } 35[\%]$ $\frac{5}{16} = \frac{25}{80} = 0.31[25] \text{ or } 31[.25\%]$	$\frac{1}{4}, \frac{5}{16}, \frac{7}{20}, \frac{3}{8}$	2	<p>B2 can be given as fraction, decimal or percentage equivalents</p> <p>B1 for 3 fractions oe in the correct order or for 4 fractions oe in the correct reverse order or for 2 fractions correctly converted to decimals or percentages or 2 fractions written with a common denominator that is a multiple of 80</p>
(b)		$\frac{5}{14}$	1	<p>B1 oe but must be fraction Do not allow 5:14 or 5 out of 14</p>
				<b>Total 3 marks</b>

**Q11.**

Q	Working	Answer	Mark	Notes
	<p>e.g. <math>0.7 \times 20\,160</math> oe (= 14 112)</p> <p>or <math>0.3 \times 20\,160</math> oe (= 6048)</p>		4	M1
	<p>e.g. “14 112” <math>\div (9 + 5 + 2)</math> (= 882)</p> <p>or <math>(20\,160 - \text{“6048”}) \div (9 + 5 + 2)</math> (= 882)</p>			<p>M1</p> <p>M2 for <math>\frac{9-2}{9+5+2} \times \text{“14 112”}</math> oe</p>
	e.g. $9 \times \text{“882”} - 2 \times \text{“882”}$			M1
		6174		A1
				<b>Total 4 marks</b>



Q12.

Q	Working	Answer	Mark	Notes
	eg $(36 \div 9) \times 5$ or 20 [ducks] or $20 : 36$ or for writing the 3 parts of the ratio correctly eg $35 : 10 : 18$ oe		3	M1 for a fully correct calculation for the number of ducks or stating 20 ducks – may be shown in a ratio – does not need to be labelled if it is clear that the number or calculation refers to the number of ducks
	“20” $\div 2 = 10$ and $10 \times 7$ oe or $\frac{36}{18} \times 35$ oe			M1 for a correct calculation to find the number of chickens.  (award the M2 for $70 : 20 : 36$ or a different order if intention is clear eg by labels)
	<i>Working not required, so correct answer scores full marks (unless from obvious incorrect working)</i>	70		A1
<b>Total 3 marks</b>				

Q13.

Ques		Working	Answer	Mark	Notes
	a	$8000:50$ or $50:8000$ or $\frac{8000}{50}$		2	M1
			160		A1
	b	$\frac{72}{80} \times 50$ oe		2	M1
		$\frac{72 \times 100}{\div '160'}$			A1
			45		cao (If ans 1.6 in (a) then do not award marks for $72 \div 1.6 = 45$ )
<b>Total 4 marks</b>					



Q14.

Question	Working	Answer	Mark	Notes
(a)		$8.4 \pm 0.2$	1	B1
(b)	"8.4" $\div 2$	$4.1 \rightarrow 4.3\text{inc}$	2	M1 A1 ft allow ft if $3 < \text{ans} < 10$
<b>Total 3 marks</b>				

Q15.

Q	Working	Answer	Mark	Notes
	3 kg = 3000 g or 150 g = 0.15 kg or 180 g = 0.18 kg or 1350 g = 1.35(0) kg		3	B1 may be seen used as part of a calculation
	$3 \times 150 + 5 \times 180 (= 1350)$ $3 \times 0.15 + 5 \times 0.18 (= 1.35(0))$			M1 Could use their converted values
		1650		A1
<b>Total 3 marks</b>				

Q16.

Question	Working	Answer	Mark	Notes
	$120 \div (3 + 5) (= 15)$		6	M1
	'15' $\times 3 (= 45)$ or '15' $\times 5 (= 75)$			M1
	'45' $\div 3 (= 15)$ or '45' $\div 3 \times 2 (= 30)$			M1
	'75' $\times \frac{16}{25} (= 48)$ or '75' $\times \frac{9}{25} (= 27)$			M1
	E.g. $(45 \div 3 \times 2) + (75 \times \frac{9}{25})$ oe or '27' + '30' or $(75 - 48) + (45 - 15)$			M1 for a complete method
		57		A1
<b>Total 6 marks</b>				



Q17.

Question	Working	Answer	Mark	Notes
(a)	$750 : 350$ oe		2	M1 Also award for $7 : 15$ , $15$ to $7$
		$15 : 7$		A1
(b)	$900 \times \frac{13}{6}$		2	M1 for $\frac{900}{6}$ or $150$ or $\frac{13}{6}$ ( $= 2.16\dots$ ) oe or $900 \times 13$ or $11\,700$
		$1950$		A1 cao
(c)	$6 \times \frac{1250}{750}$ or $1250 \div \frac{750}{6}$		2	M1 for $\frac{1250}{750}$ oe ( $= 1.66\dots$ ) or $\frac{750}{1250}$ oe ( $= 0.6$ ) or $\frac{750}{6}$ oe ( $= 125$ )
		$10$		A1 cao
Total 6 marks				

Q18.

Q	Working	Answer	Mark	Notes
a		$93\,000\,000$	1	B1
b		Singapore	1	B1
c	$1.382 \times 10^9 - 1.327 \times 10^9$ oe or $55\,000\,000$			M1 or for $5.5 \times 10^n$ $n \neq 7$
		$5.5 \times 10^7$	2	A1
Total 4 marks				



**Q19.**

Question	Working	Answer	Mark	Notes
(a)		71 800 000	1	B1
(b)	Eg $1.88 \times 10^7 + 3.10 \times 10^8 + 2.64 \times 10^8 + 7.18 \times 10^7$ or $18\,800\,000 + 310\,000\,000 + 264\,000\,000 + 71\,800\,000$ with at least 3 numbers correct	$6.646 \times 10^8$ oe	2	M1 for a complete method or for digits 6646  A1 for $6.646 \times 10^8$ oe eg 664 600 000
(c)		$9.88 \times 10^6$	1	B1

**Q20.**

Question	Working	Answer	Mark	Notes
(a)		5 700 000	1	B1
(b)		$4 \times 10^{-3}$	1	B1
(c)		5 000 000 or $5 \times 10^6$ oe	2	B2 If not B2 then award B1 for 320000 or $3.2 \times 10^5$ oe or $5 \times 10^n$ oe where $n \neq 6$
				<b>Total 4 marks</b>

**Q21.**

Question	Working	Answer	Mark	Notes
(a)		0.000 78	1	B1
(b)	22 500 000 oe e.g. $22.5 \times 10^6$ or $2.25 \times 10^n$ $n \neq 7$		2	M1
		$2.25 \times 10^7$		A1
				<b>Total 3 marks</b>



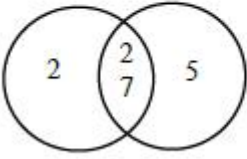
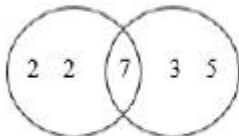


Q22.

Q	Working	Answer	Mark	Notes																											
a		1, 3, 9	1	B1 need all three but ignore any repeats																											
b	<p>15, 30, 45, 60, 75, 90, 105, 120, 135, 150, 165, 180, 195,</p> <p>210 and 70, 140, 210</p> <p>OR <math>3 \times 5</math> and <math>2 \times 5 \times 7</math></p> <p>OR <math>2 \times 3 \times 5 \times 7</math> (2, 3, 5, 7) oe</p> <table><tr><td>3</td><td>15</td><td>70</td></tr><tr><td>5</td><td>5</td><td>70</td></tr><tr><td>7</td><td>1</td><td>14</td></tr><tr><td>2</td><td>1</td><td>2</td></tr><tr><td></td><td>1</td><td>1</td></tr></table> <p>eg <math>3 \times 5 \times 14</math> (3, 5, 14)</p> <table><tr><td>5</td><td>15</td><td>70</td></tr><tr><td>3</td><td>3</td><td>14</td></tr><tr><td>14</td><td>1</td><td>14</td></tr><tr><td></td><td>1</td><td>1</td></tr></table>	3	15	70	5	5	70	7	1	14	2	1	2		1	1	5	15	70	3	3	14	14	1	14		1	1		2	M1 for listing at least three multiples of 15 and 70 or finding the prime factors of 15 and 70 (could be factors at the ends of branches of factor trees or lists 3, 5 and 2, 5, 7) or a correct calculation or the correct values for the LCM eg 2,3,5,7 or 3,5,14 oe (could be in a table)
3	15	70																													
5	5	70																													
7	1	14																													
2	1	2																													
	1	1																													
5	15	70																													
3	3	14																													
14	1	14																													
	1	1																													
		210		A1																											
				Total 3 marks																											



Q23.

Question	Working	Answer	Mark	Notes
(a)	<p>1, 2, 4, 7, 14, 28 and 1, 2, 5, 7, 10, 14, 35, 70</p> <p>or</p> <p><math>2 \times 2 \times 7</math> and <math>2 \times 5 \times 7</math></p> <p>or</p> 		2	<p>M1 for starting to list at least four factors of each number</p> <p>or 2, 2, 7 and 2, 5, 7 seen (may be in a factor tree and ignore 1)</p> <p>or a fully correct Venn diagram</p>
		14		A1 cao
(b)	<p>28, 56, 84, 112... and 105, 210, 315, 420...</p> <p>or</p> <p>2, 2, 7 and 3, 5, 7</p> <p>or</p>  <p>or <math>\frac{28 \times 105}{7}</math> or 2, 2, 3, 5, 7 oe</p>		2	<p>M1 for any correct valid method e.g.</p> <p>for starting to list at least four multiples of each number</p> <p>or 2, 2, 7 and 3, 5, 7 seen (may be in a factor tree and ignore 1)</p> <p>or a fully correct Venn diagram</p>
		420		A1 cao
Total 4 marks				



Q24.

Q	Working	Answer	Mark	Notes
(a)		$2 \times 3^{37}$	1	B1
(b)	$2 \times 3^{43} \times 2^4 \times 3^{37}$ or $2^5 \times 3^p$ ( $p \neq 80$ ) or $2^q \times 3^{80}$ ( $q \neq 5$ )		2	M1
		$2^5 \times 3^{80}$		A1
				Total 3 marks