BROAD HORIZON
TUITION CENTRE

11+ Tuition – Year 5

Week 11

ANSWERS

Contents

Starter Task – Quick Revision

1) Tom can bake 4 cakes in 1 hour, how long will it take to bake 18 cakes ?

4 Hours 30 Minutes

2) A quadrilateral has a length of 8.5cm and a width of 6cm.

a. What is the area?

$51cm^2$

b. What is the perimeter?

29cm

3) A call centre can take 1 phone call every 3 seconds, how many phone calls can they take in 2 hours?

2400

4) Add 75ml to 3.65L, give your answer in litres.

3.725L

5) Workout the volume of a cuboid with a length of 7cm, a width of 4cm and a height of 1.5cm.

$42cm^3$

6) Two angles on a straight line are 41 and 15 degrees, what is the third missing angle?

124

7) Simplify the ratio 98:28

7:2

8) $\frac{5}{8} + \frac{4}{24} = \frac{19}{24}$

9) $\frac{4}{9} - \frac{7}{18} = \frac{1}{18}$

10

Starter task – Vocabulary Homework Test

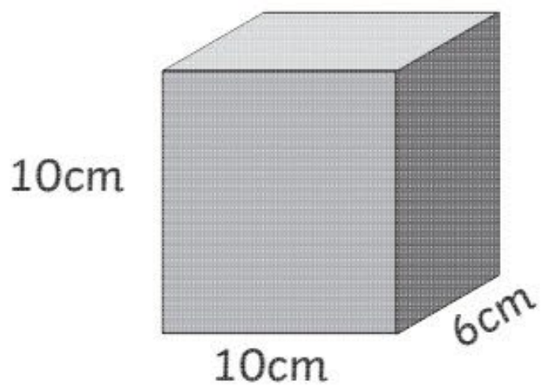
Exercise C

1. Fiasco
2. Popular
3. Pedigree
4. Elusive
5. Episode
6. Naval
7. Neglect
8. Commitment
9. Devious
10. Enlighten

Calculate Volume of Cuboid Activity Sheet (1) **Answers**

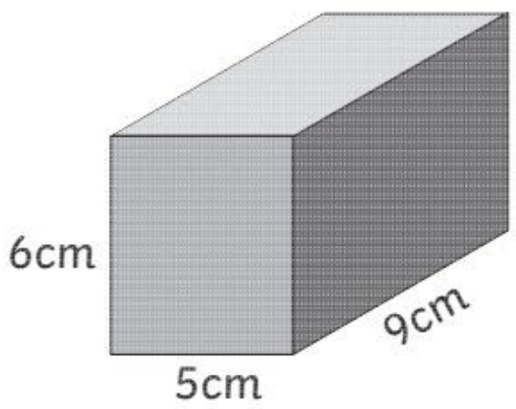
Calculate the volume of the following cuboids.

1.



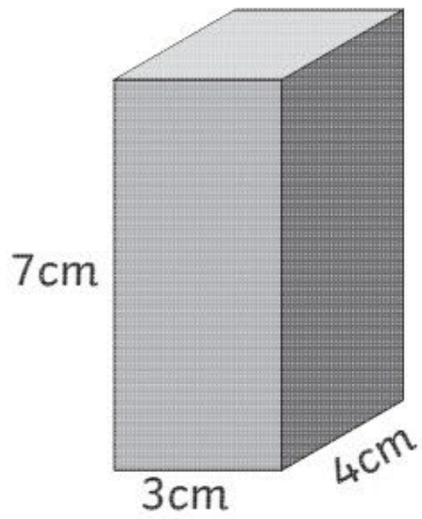
Volume = **600cm³**

2.



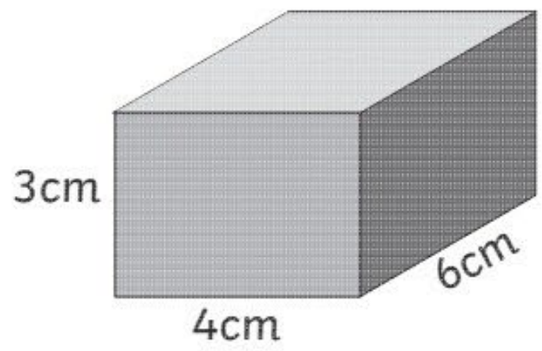
Volume = **270cm³**

3.



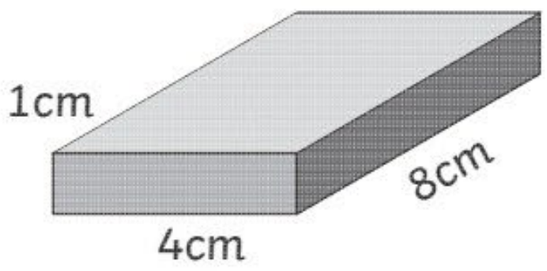
Volume = **84cm³**

4.



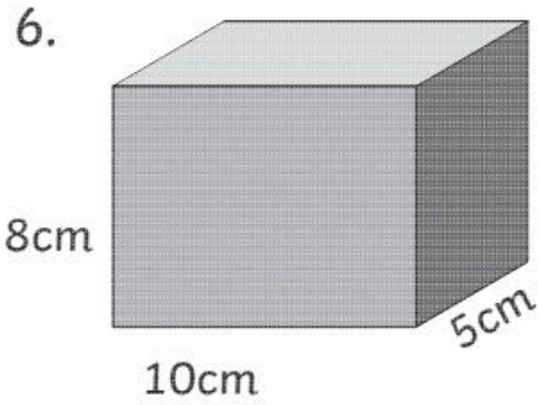
Volume = **72cm³**

5.



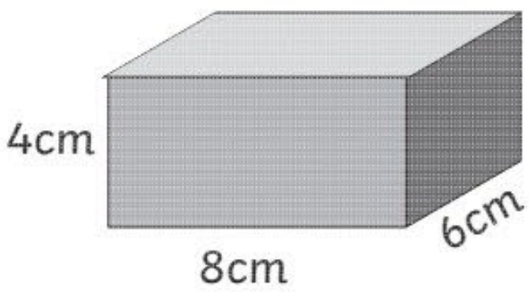
Volume = **32cm³**

6.



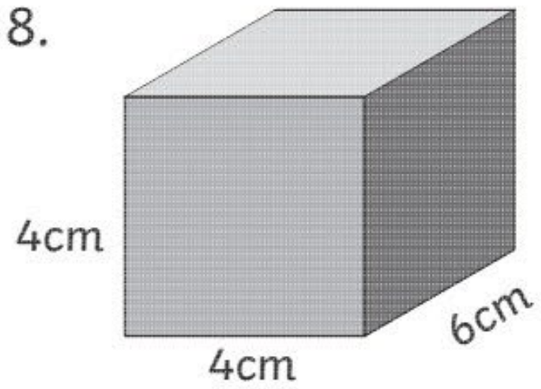
Volume = **400cm³**

7.



Volume = **192cm³**

8.



Volume = **96cm³**

9.

Volume = **252cm³**

10.

Volume = **96cm³**

11.

Volume = **800cm³**

12.

Volume = **240cm³**

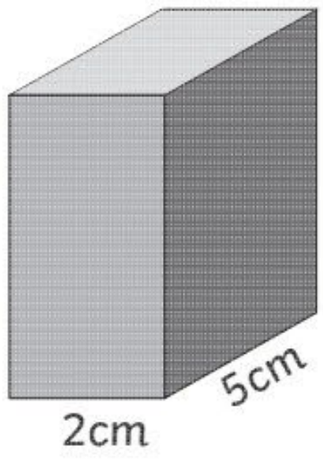
Challenge

Draw 3 different cuboids with a volume of 24cm³, writing the dimensions. Your drawings don't need to be to scale.

Calculate Volume of Cuboid Activity Sheet (2) Answers

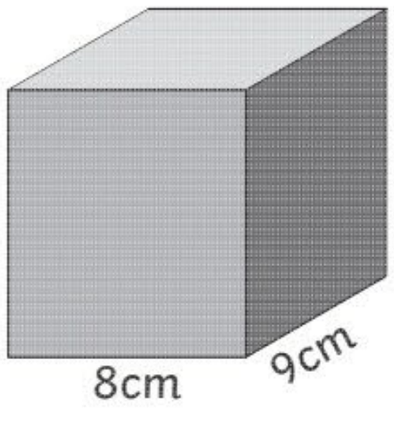
Calculate the volume of the following cuboids.

1.



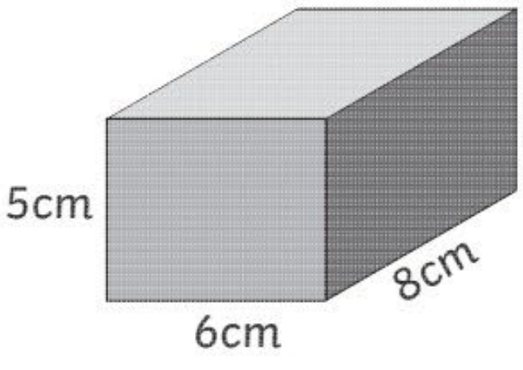
Volume = **40cm³**

2.



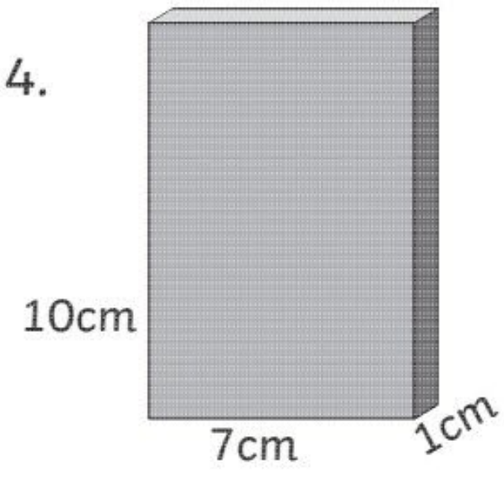
Volume = **648cm³**

3.



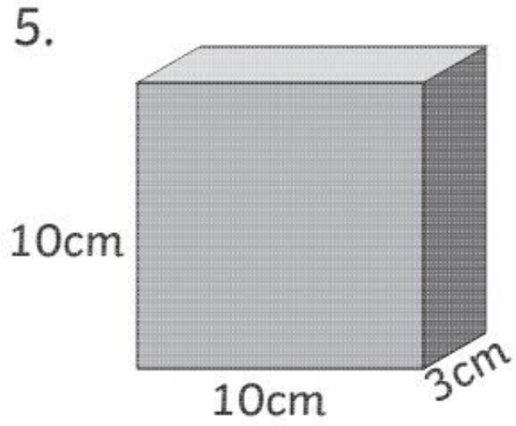
Volume = **240cm³**

4.



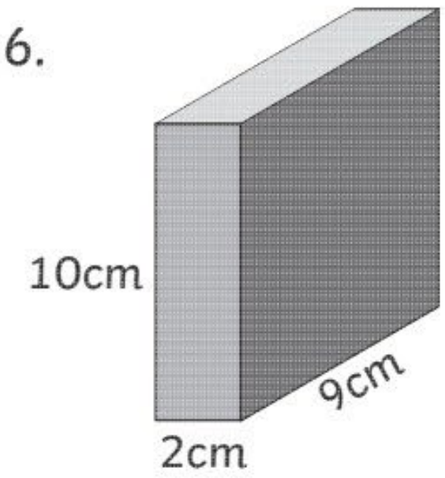
Volume = **70cm³**

5.



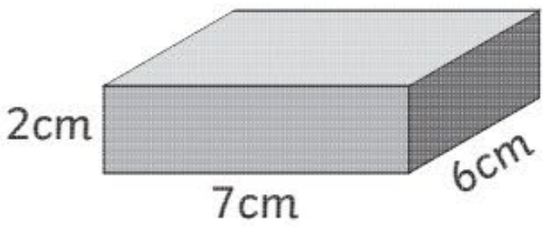
Volume = **300cm³**

6.



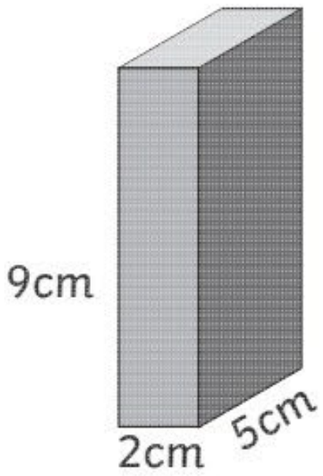
Volume = **180cm³**

7.



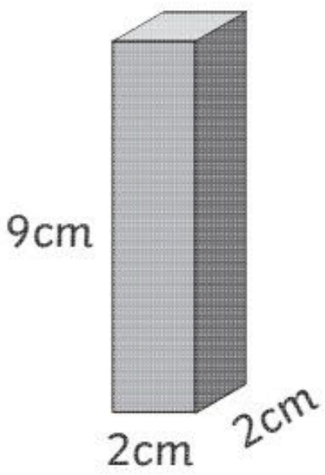
Volume = **84cm³**

8.



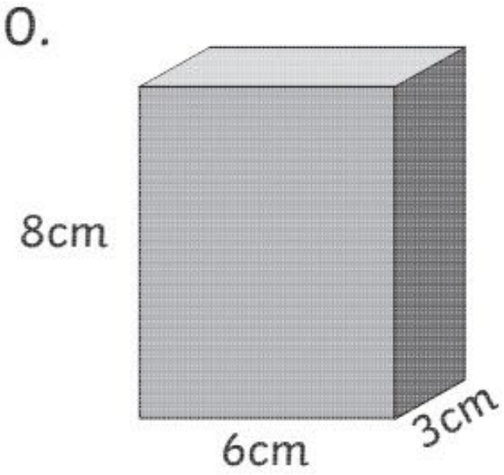
Volume = **90cm³**

9.



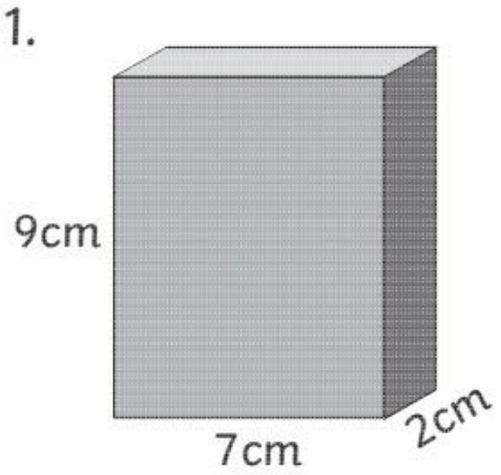
Volume = **36cm³**

10.



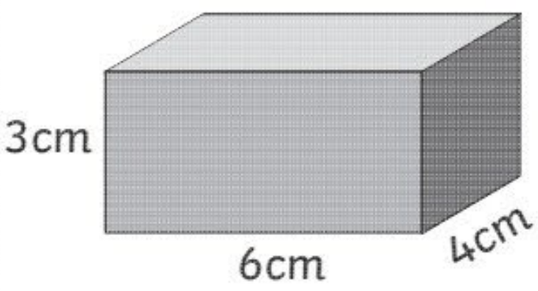
Volume = **144cm³**

11.



Volume = **126cm³**

12.



Volume = **72cm³**

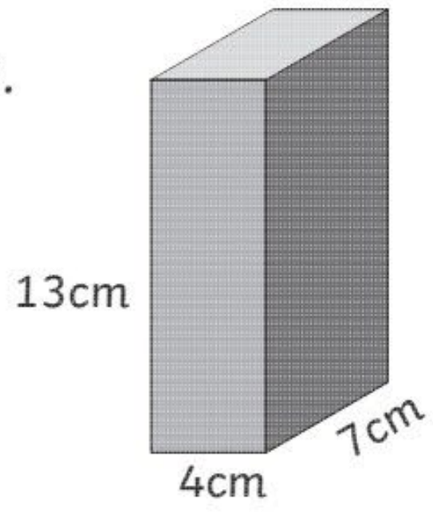
Challenge

Draw 2 different cuboids with a total volume of 40m³, writing the dimensions. Your drawings don't need to be to scale!

Calculate Volume of Cuboid Activity Sheet (1) **Answers**

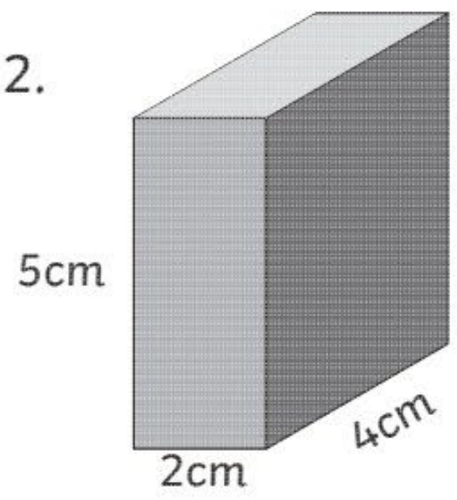
Calculate the volume of the following cuboids.

1.



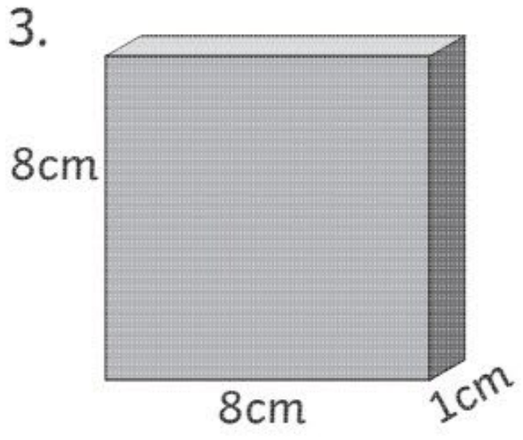
Volume = **364cm³**

2.



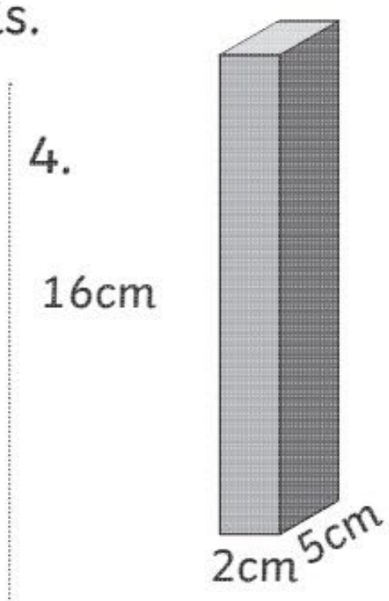
Volume = **40cm³**

3.



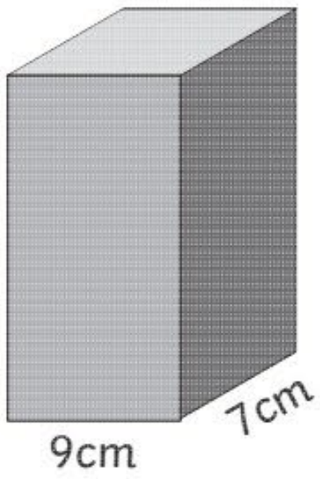
Volume = **64cm³**

4.



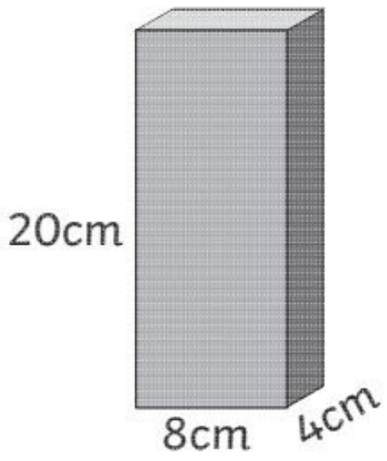
Volume = **160cm³**

5.



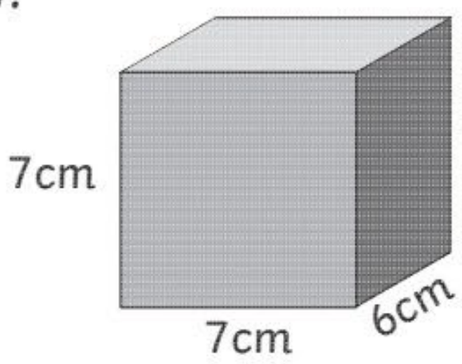
Volume = **1134cm³**

6.



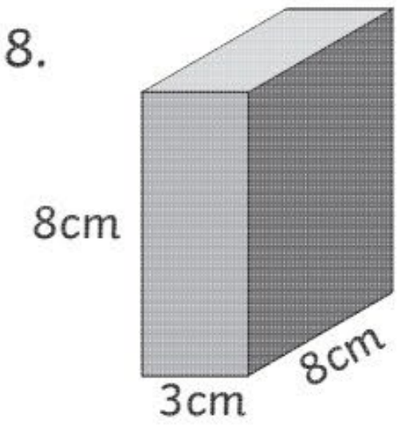
Volume = **640cm³**

7.



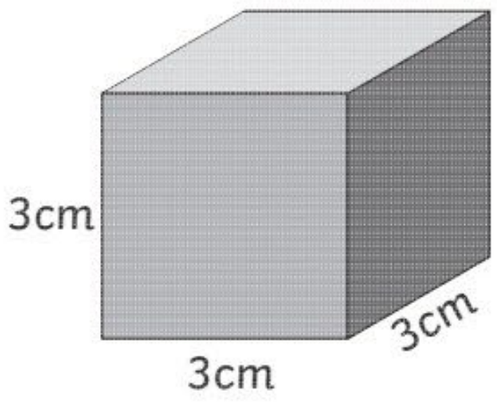
Volume = **294cm³**

8.



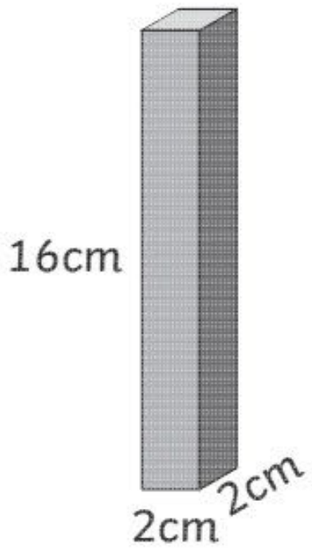
Volume = **192cm³**

9.



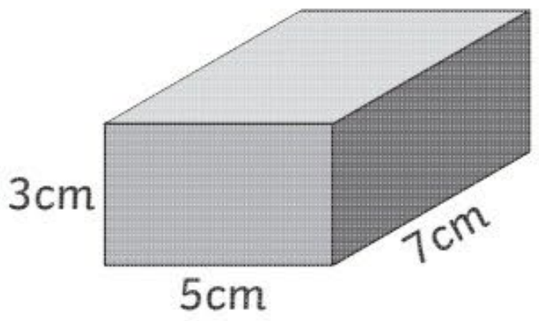
Volume = **27cm³**

10.



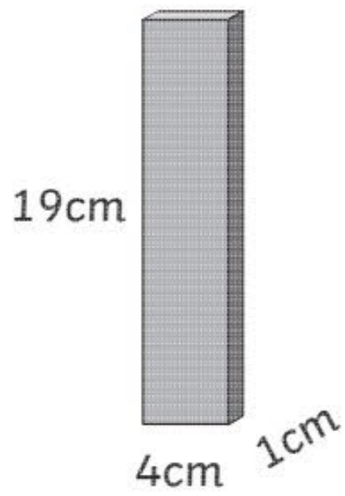
Volume = **64cm³**

11.



Volume = **105cm³**

12.



Volume = **76cm³**

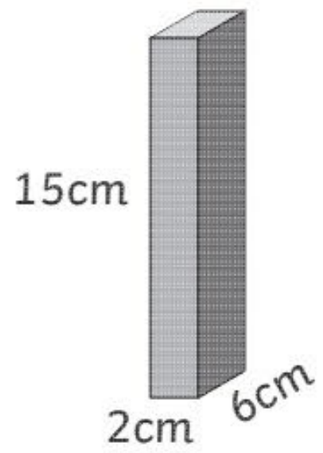
Challenge

A box supplier makes 3 small boxes with a volume of 100cm³. What could be the dimensions of the boxes?

Calculate Volume of Cuboid Activity Sheet (2) Answers

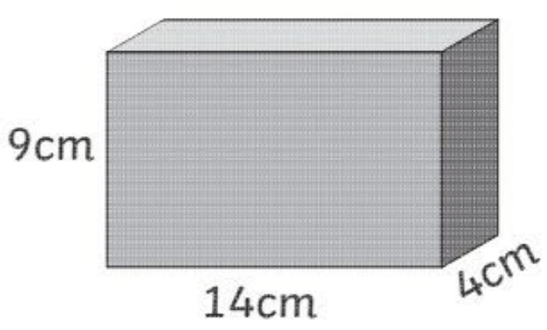
Calculate the volume of the following cuboids.

1.



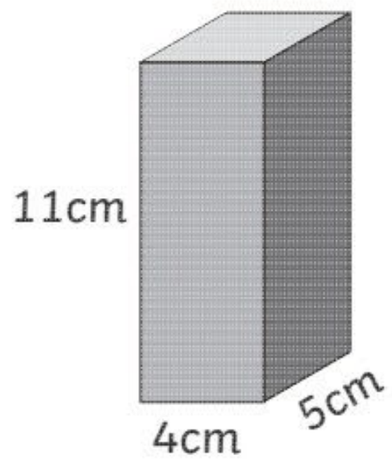
Volume = **180cm³**

2.



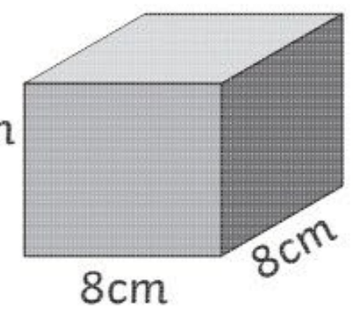
Volume = **504cm³**

3.



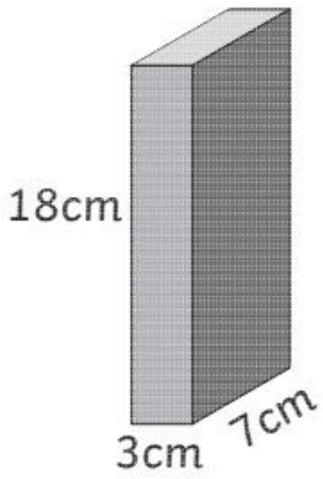
Volume = **220cm³**

4.



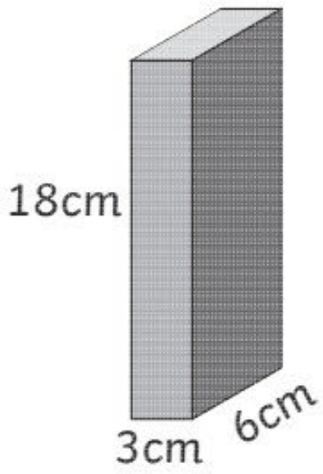
Volume = **448cm³**

5.



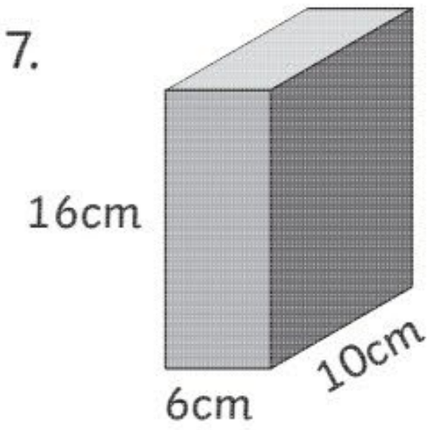
Volume = **378cm³**

6.



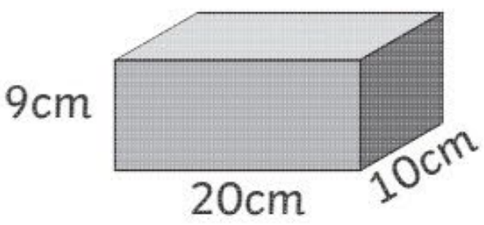
Volume = **324cm³**

7.



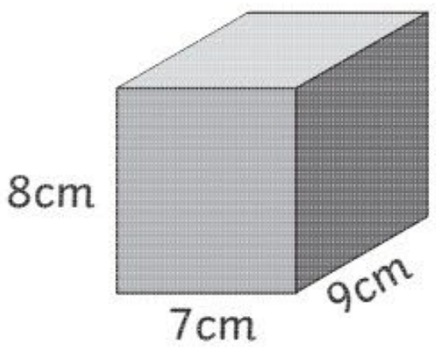
Volume = **960cm³**

8.



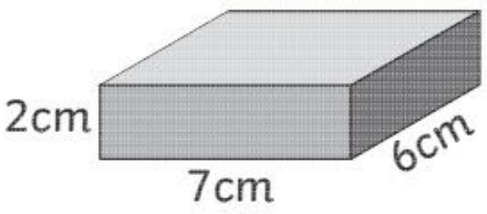
Volume = **1800cm³**

9.



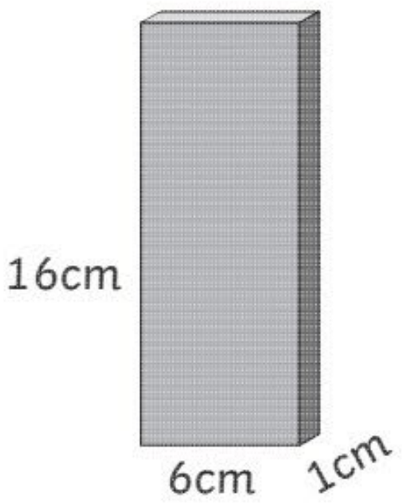
Volume = **504cm³**

10.



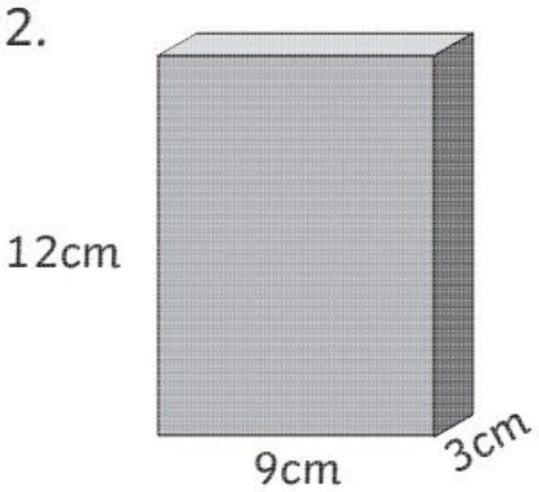
Volume = **84cm³**

11.



Volume = **96cm³**

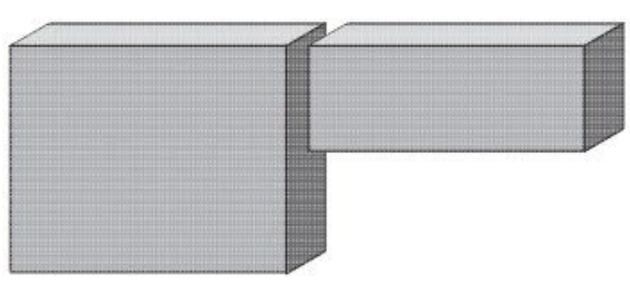
12.



Volume = **324cm³**

Challenge

A swimming pool is made of 2 cuboid spaces with a total volume of 210m³. What could be the dimensions of the pool?

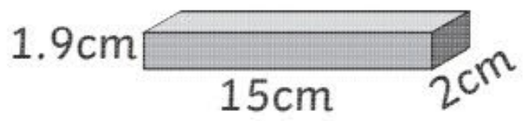


Possible answer: The pool is 5m wide, 14m long. Shallow end is 5m x 7m x 2m deep; deep end is 5m x 7m x 4m deep.

Calculate Volume of Cuboid Activity Sheet (1) **Answers**

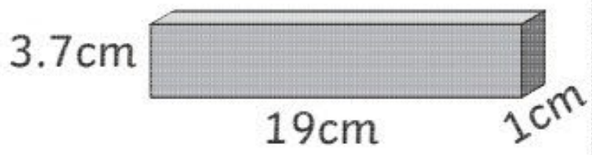
Calculate the volume of the following cuboids.

1.



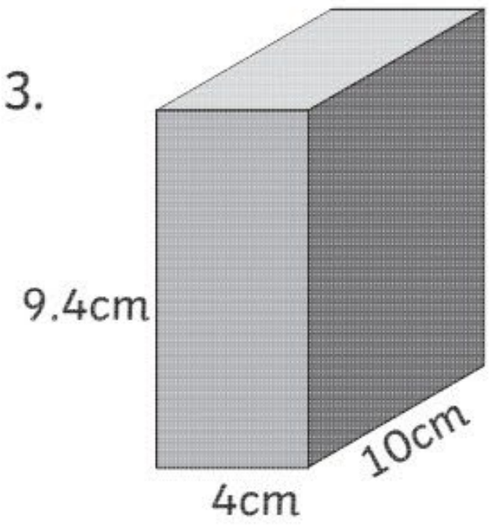
Volume = **57cm³**

2.



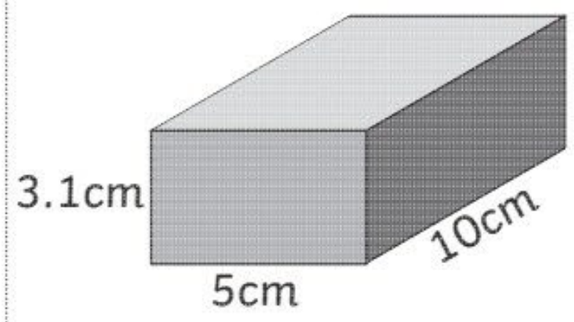
Volume = **70.3cm³**

3.



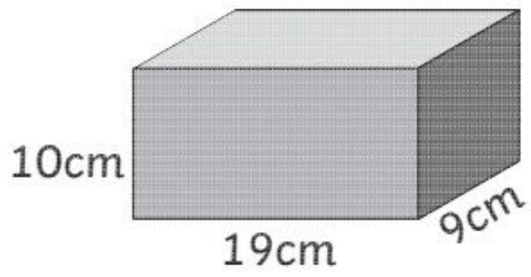
Volume = **376cm³**

4.



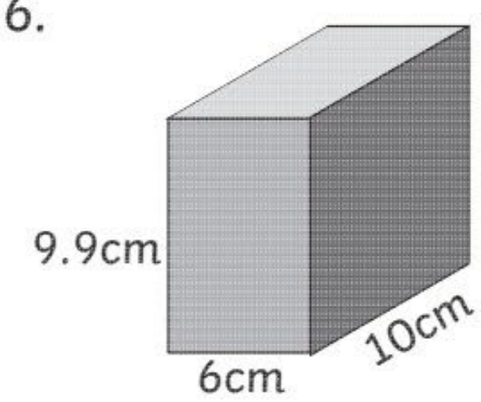
Volume = **155cm³**

5.



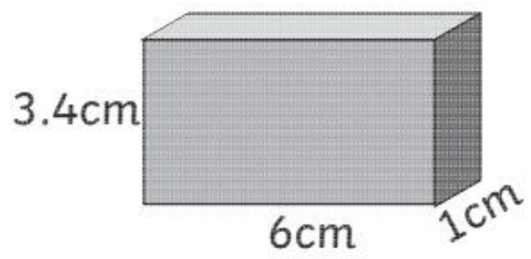
Volume = **1710cm³**

6.



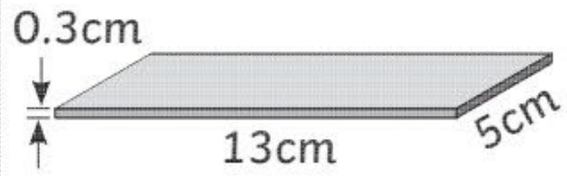
Volume = **594cm³**

7.



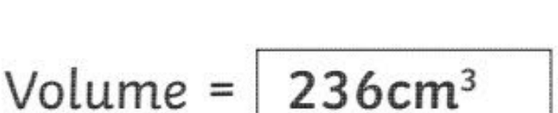
Volume = **20.4cm³**

8.



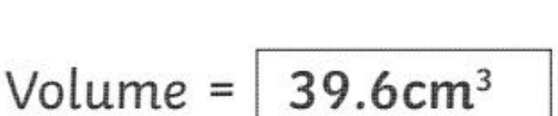
Volume = **19.5cm³**

9.



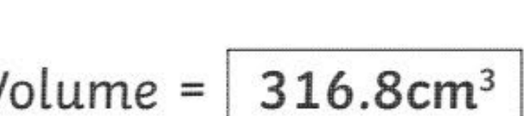
Volume = **236cm³**

10.



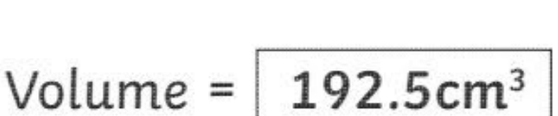
Volume = **39.6cm³**

11.



Volume = **316.8cm³**

12.



Volume = **192.5cm³**

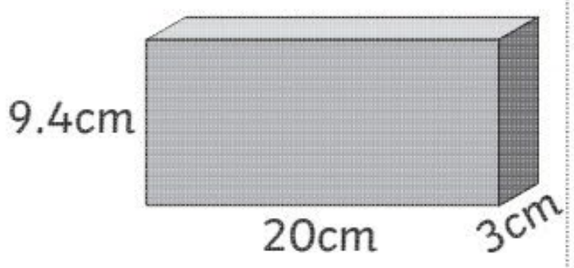
Challenge

A box supplier is asked to make a cube-shaped box with a volume of 16cm³. To the nearest 1 decimal place, what could be the dimensions of the box? **Answer 2.5cm**

Calculate Volume of Cuboid Activity Sheet (2) Answers

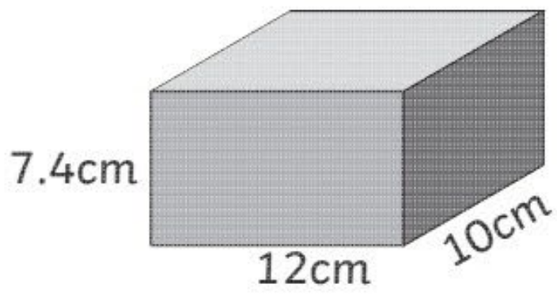
Calculate the volume of the following cuboids.

1.



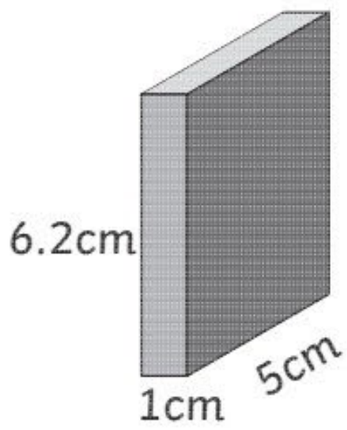
Volume = **564cm³**

2.



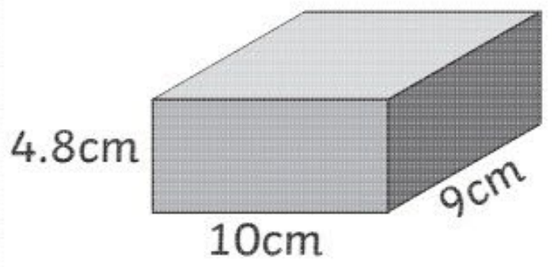
Volume = **888cm³**

3.



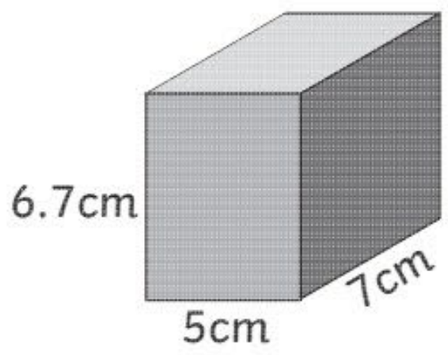
Volume = **31cm³**

4.



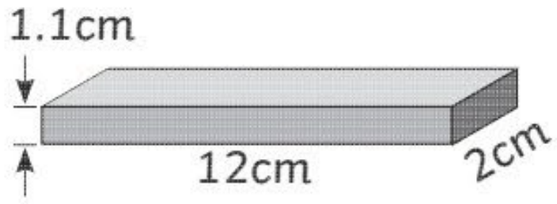
Volume = **432cm³**

5.



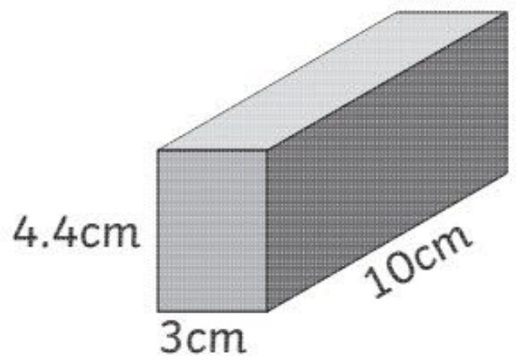
Volume = **234.5cm³**

6.



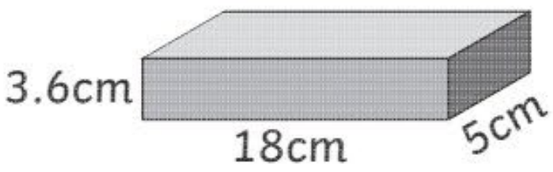
Volume = **26.4cm³**

7.



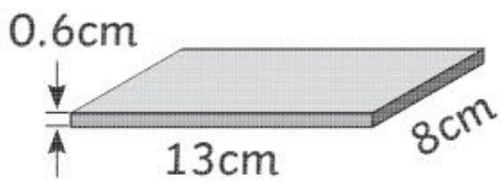
Volume = **132cm³**

8.



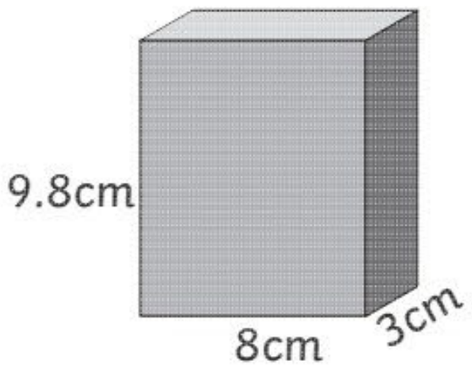
Volume = **324cm³**

9.



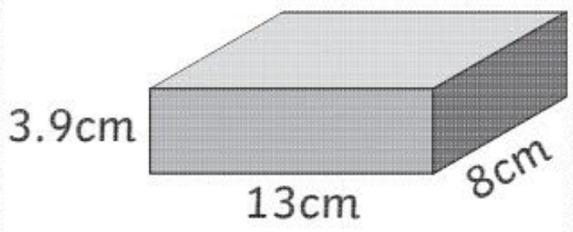
Volume = **62.4cm³**

10.



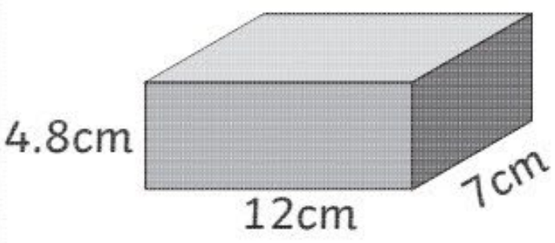
Volume = **235.2cm³**

11.



Volume = **405.6cm³**

12.



Volume = **403.2cm³**

Challenge

A swimming pool has a total volume of 180m³. The pool is 2.5m deep, and its length is twice its width. The pool is tiled on each side and at the bottom. What is the surface area of the tiles?

Answer 162m²

Name : _____

Answer key

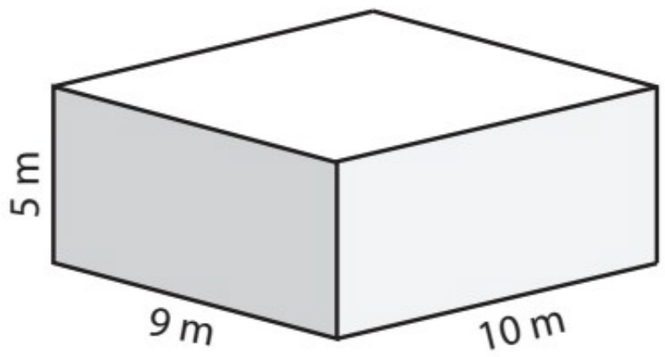
Score : _____

ES2

Surface Area - Rectangular Prism

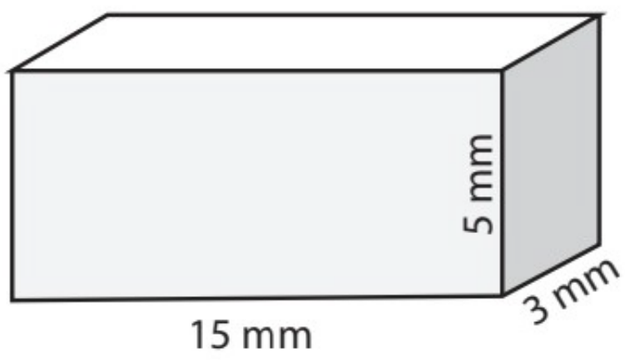
Find the surface area of each rectangular prism.

1)



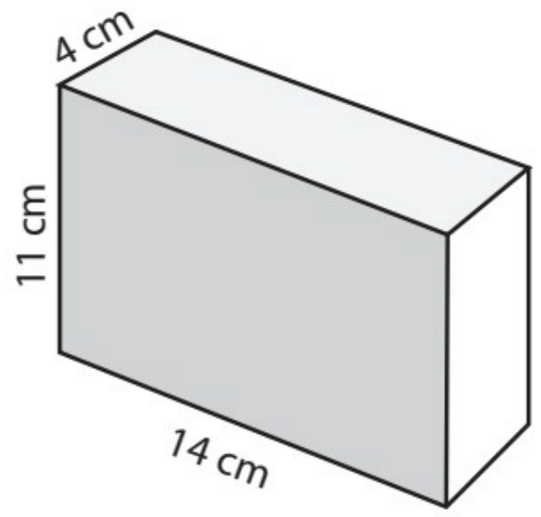
Surface Area = **370 m²**

2)



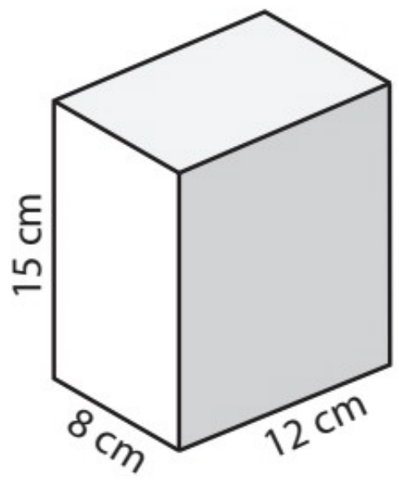
Surface Area = **270 mm²**

3)



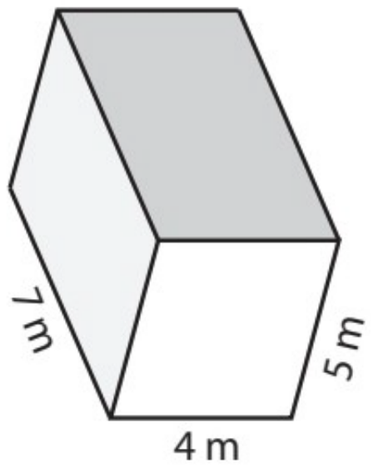
Surface Area = **508 cm²**

4)



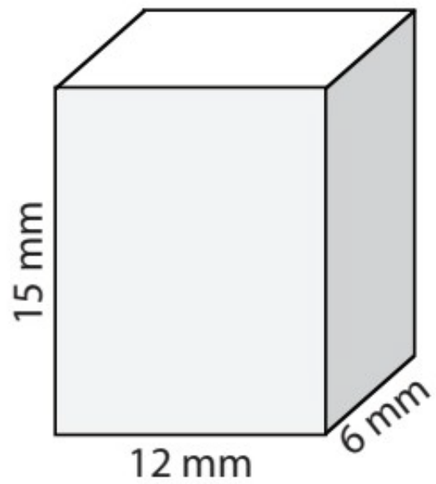
Surface Area = **792 cm²**

5)



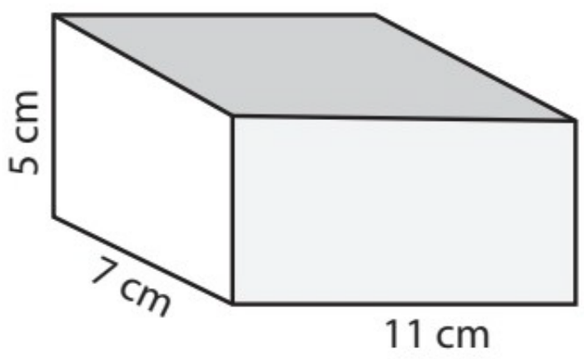
Surface Area = **166 m²**

6)



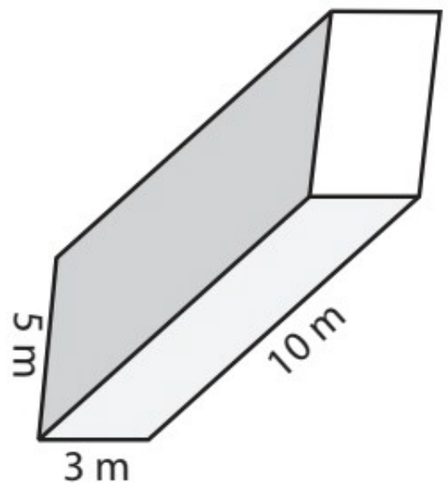
Surface Area = **684 mm²**

7)



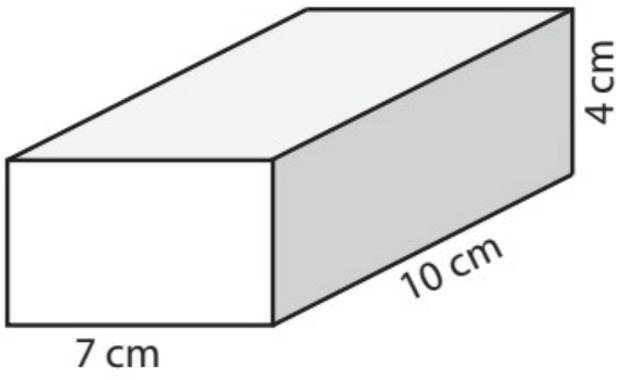
Surface Area = **334 cm²**

8)



Surface Area = **190 m²**

9)



Surface Area = **276 cm²**

10) A box in the shape of rectangular prism has a dimension of 30 meters x 27 meters x 28 meters. What is the surface area of the box?

Surface Area = **4812 m²**

Maths

Practice – Long Maths Word Problems

Test 21 — pages 70-72

1. C

You can use partitioning to divide 189 by 9: 189 is the same as 180 + 9. 180 ÷ 9 = 20, and 9 ÷ 9 = 1, so he can make 20 + 1 = 21 bunches.

2. 6 hours, 4 minutes

Add together the hours: 2 + 3 = 5 hours. Then add together the minutes: 14 + 50 = 64 minutes, which is the same as 1 hour 4 minutes. So in total he ran 5 hours + 1 hour 4 minutes, which is 6 hours 4 minutes.

3. 600 ml

The blender makes 900 ml with 6 apples. Divide this by 3: it makes 900 ÷ 3 = 300 ml with 6 ÷ 3 = 2 apples. Then multiply by 2: the blender makes 300 × 2 = 600 ml of juice with 2 × 2 = 4 apples.

4. D

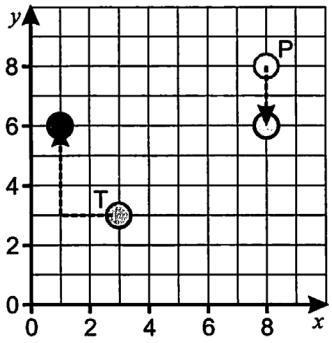
24 – 4 = 20. $^1/_4$ of 20 is 20 ÷ 4 = 5. 20 – 5 = 15.

5. £15.00

1 hour 40 minutes is 60 + 40 = 100 minutes. So it costs 15 × 100 = 1500p, which is the same as £15.

6. E

After moving, Tara and Petr's counters are now here:



There are 7 grid squares between them.

7. 24 cm²

12 × 7 = 84 cm², and 10 × 6 = 60 cm², so the difference is 84 – 60 = 24 cm².

8. D

0.9 cm is the same as 9 mm. This is the thickness of 100 sticky notes, so each one is 9 ÷ 100 = 0.09 mm thick.

9. 40

$^1/_6$ of 48 is 48 ÷ 6 = 8. So $^5/_6$ of 48 is 8 × 5 = 40.

10. C

There are 360° round a point and 60 minutes in an hour, so each minute the hand moves 360 ÷ 60 = 6° (you can cancel the zeros here).

11. 3:30

Each hour is an angle of 360 ÷ 12 = 30°. So find 75 ÷ 30. 75 ÷ 3 = 25, so 75 ÷ 30 = 25 ÷ 10 = 2.5. So the hour hand must be two and a half hours away from the minute hand. It's anticlockwise so it's before the minute hand. So the hour hand is halfway between the 3 and the 4 — the time is 3:30.

12. E

In Week 1 she has 2 teapots. She sells one and buys three, so in Week 2 she has 2 – 1 + 3 = 4 teapots. In Week 3 she has 4 – 1 + 3 = 6 teapots, in Week 4 she has 6 – 1 + 3 = 8 teapots. So the number of teapots is always double the Week number. So on Week n she has $2n$ teapots.

Test 22 — pages 73-75

1. D
You're rounding to the nearest thousand pounds, so look at the hundreds digit, which is 4. This is less than 5, so round the thousands down to £17 000.

2. 0.9 m
72 ÷ 8 = 9, so 7.2 ÷ 8 = 0.9.

3. B
$^1/_2$ is the same as $^2/_4$, so $^2/_4 + {}^1/_4 = {}^3/_4$ of the towels aren't purple. This means that $1 - {}^3/_4 = {}^1/_4$ of the towels are purple.

4. 22
$^1/_2$ is double $^1/_4$, so there are 2 × 11 = 22 blue towels.

5. 12
There are 8 edges on a square-based pyramid, so there are 2 × 8 = 16 edges on two. But when they are stuck together, 4 of the edges are joined, so there are 16 – 4 = 12 edges on an octahedron.

6. 28
3.2 kg is the same as 3200 g. To divide 3200 by 800, you can cancel some zeros, so 3200 ÷ 800 is the same as 32 ÷ 8 = 4. So the pile contains 4 lots of 800 g, which is 4 × 7 = 28 copies.

7. £27.65
£3.95 is 5p less than £4. So £3.95 × 7 is the same as £4 × 7 – 5p × 7, which is £28 – 35p = £27.65.

8. 50°
The bunting is an isosceles triangle, so there are two angles of size 65°, which come to a total of 2 × 65 = 130°. The angles in a triangle add up to 180°, so angle x is 180 – 130 = 50°.

9. C
One triangle and one space have a width of 20 + 10 = 30 cm. So 10 triangles and 10 spaces are 30 × 10 = 300 cm wide, which is 3 m. 15 = 5 × 3, so there are 5 lots of 10 triangles in 15 m, which is 5 × 10 = 50 triangles.

10. C
Break 11.5 into chunks: 11.5 = 10 + 1 + 0.5.
So the boat travels 38 × 11.5, which is the same as 38 × 10 + 38 × 1 + 38 × 0.5 = 380 + 38 + 19 = 437 km.

11. D
The mean time it took Greta over five days was 26 minutes, so the total of all the times is 5 × 26 = 130 minutes (you can use partitioning). The total time for Monday to Thursday is 23 + 28 + 22 + 30 = 23 + 50 + 30 = 28 + 80 = 103.
So on Friday it took Greta 130 – 103 = 27 minutes.

12. £30.20
Replace n with 50 in the formula: 60 × 50 + 20 = 3000 + 20 = 3020p. This is the same as £30.20.

Test 11— pages 36-38

1. 1837.4
There is a 6 in the hundredths column, which is greater than 5, so round the tenths column up to give 1837.4.

2. 12 cm
12 × 12 = 144, so a square with an area of 144 cm^2 must have sides that are 12 cm long.

3. B
The net consists of six rectangular faces and an identical hexagonal face at each end, so it will form a hexagonal prism.

4. C
The remainder must be less than 11, or 11 would go into the number at least one more time. So the only option is 9.

5. 1050 ml
2.4 litres = 2400 millilitres, so the difference between 2.4 litres and 1350 ml is 2400 – 1350 = 1050 ml.

6. 20:11
Add 45 minutes to 19:26 in stages: adding 34 minutes gives 20:00. Then add the remaining 45 –34 = 11 minutes to get to 20:11.

7. 34 mm
There are ten divisions on the ruler between 3 cm and 4 cm, so each one represents 1 ÷ 10 = 0.1 cm. The arrow is four divisions along from 3 cm, so it is pointing at 3 + (0.1 × 4) = 3 + 0.4 = 3.4 cm. 3.4 cm = (3.4 × 10) mm = 34 mm.

8. D
$^1/_{10}$ = 10%, so $^1/_{20}$ = 5%. So $^9/_{20}$ = 5 × 9 = 45%.

9. 48 cm
One half of a side is 4 cm long, so the length of each side is 4 × 2 = 8 cm. Regular hexagons have 6 sides of equal length, so the perimeter is 6 × 8 = 48 cm.

10. E
1000 = M, 200 = CC and 40 = XL, so 1240 written in Roman numerals is MCCXL.

11. B
The diamond is the only symbol with more than one line of symmetry, as shown.

12. £12.00
$^1/_7$ of £35 = 35 ÷ 7 = £5, so $^6/_7$ of £35 = 5 × 6 = £30.
10% of £20 = 20 ÷ 10 = £2. 90% of £20 = 2 × 9 = £18.
So 90% of £20 is (30 – 18) = £12 less than $^6/_7$ of £35.

13. 13
The mean is 9, so the sum of the six numbers is 9 × 6 = 54. The sum of the first five numbers is 41, so the sixth number is 54 – 41 = 13.

14. A
Dividing the shape into two rectangles with a horizontal line gives a smaller rectangle with an area of 2 × 8 = 16 m^2 and a larger rectangle with an area of (12 – 2) × (8 – 3.5) = 10 × 4.5 = 45 m^2. So the total area is 16 + 45 = 61 m^2.

15. 98
The difference between terms doubles each time. Difference between 1st and 2nd terms = 3. Difference between 2nd and 3rd terms = 6. So 4th term = 14 + (2 × 6) = 14 + 12 = 26, 5th term = 26 + (2 × 12) = 26 + 24 = 50 and 6th term = 50 + (2 × 24) = 50 + 48 = 98.

16. 39°

Angles in a quadrilateral add up to 360°. The sum of the first two angles is 168 + 114 = 282°, so the sum of the two remaining angles is 360 – 282 = 78°. The two remaining angles are equal, so each angle is 78 ÷ 2 = 39°.

17. 16

$(y - 10) \div 3 = 2$. Multiply both sides by 3 to get $y - 10 = 6$. Then add 10 to both sides to get $y = 16$.

18. 1106

Using the order of operations, do both multiplications first: $74 \times 9 = (74 \times 10) - 74 = 740 - 74 = 666$. $110 \times 4 = 440$. So $74 \times 9 + 110 \times 4 = 666 + 440 = 1106$.

19. D

If you start with 3 and take away 7 each time, the difference between every term and 3 will be a multiple of 7. The difference between –21 and 3 is 24, which is not a multiple of 7, so –21 is not in the sequence.

20. 72

In a leap year, there are 31 days in January and 29 days in February. So March 27th is (31 – 15) + 29 + 27 = 16 + 29 + 27 = 72 days after January 15th.

21. B

1.05 km = 1050 m. The circumference of the wheel is 2.1 m, so it would take 10.5 ÷ 2.1 = 5 rotations to travel 10.5 m. 1050 m is 100 times further than 10.5 m, so it would take 5 × 100 = 500 rotations for the wheel to travel 1.05 km.

22. E

To find the perimeter of the triangle, add all the sides together: perimeter = $c + (3c + 7) + (d - 2)$
Collect all the cs, ds and numbers together:
perimeter = $c + 3c + d + 7 - 2$
Then simplify the expression: perimeter = $4c + d + 5$

English – Comprehension

Comprehension Practice

Test 7 - Little Women

Question	Answer	Source of Answer
1	D	Reader's logical inference required. Refer to line 1 to make a decision as to in which season this passage takes place. As line 1 makes is clear that it is Christmastime, the passage must take place in winter.
2	C	Reader's personal judgement required. Refer to their speech in lines 1-5 to help form an opinion as to which given option provides the best description. Words and phrases such as 'grumbled' (line 1), 'It's so dreadful…' (line 3) and 'I don't think it's fair…' (line 4) imply that they are complaining.
3	C	Reader's personal judgement required. 'contented' means 'satisfied'. Refer to lines 1-7, by comparing the sister's attitudes it can be inferred that Beth is the most contented as the others are complaining and therefore not satisfied.
4	D	Reader's logical inference required. Refer to line 11 to make a decision as to why their father is away. As the text says '…Father far away, where the fighting was.' (line 11), it can be inferred that their father is a soldier.
5	A	Knowledge of vocabulary required. The word 'regretfully' means feeling sad or disappointed. A synonym is a word that means the same, or nearly the same, as another word. The best option for 'regretfully' is 'sorrowfully', and it is the only word that fits in the sentence.
6	E	Refer to lines 14-16: '…she thinks we ought not to spend money for pleasure, when our men are suffering so in that army. We can't do much, but we can make our little sacrifices…'
7	E	Reader's logical inference required. Refer to line 21-22 to make a decision as to what 'Undine and Sintran' is. Jo says she wants to buy it and she is then described as a 'bookworm' (line 22), therefore it can be inferred that 'Undine and Sintran' is most likely to be a book.
8	A	Reader's logical inference required. Refer to the descriptions of what each sister does in lines 31-42 to make a decision as to which sister is the youngest. As all of the sisters describe jobs, but Amy describes going to school, it can be inferred that Amy is the youngest.
9	B	Knowledge of vocabulary required. The word 'impertinent' means not showing proper respect. An antonym is a word that means the opposite of another word. Therefore, the option here that is the best antonym for 'impertinent' is 'polite'.
10	D	Reader's logical inference required. Refer to the sentence "Don't you wish we had the money Papa lost when we were little…?" (lines 49-50) to make a decision as to which statement is true. This sentence implies that the family used to have more money, so the best option is 'd'.
11	C	Knowledge of vocabulary required. The word 'reproving' means reprimanding or telling off. Therefore, the best option to explain the quoted phrase is 'She looks at her as if she wants to tell her off.'
12	C	Reader's personal judgement required. Refer to lines 59-61 to help form an opinion as to which of the given options provides the best description of Jo. The sentences '"It's so boyish!" "That's why I do it."' imply that Jo deliberately chooses to appear 'boyish' rather than 'feminine'.
13	D	Reader's personal judgement required. Look at the passage as a whole to help form an opinion as to what its focus is. As the majority of the text consists of descriptions of the sisters and their interactions, 'the sisters and how they interact' must be the focus.
14	E	Reader's personal judgment required. Look at the text as a whole to help form an opinion as to what its moral is. As there does not seem to be an overriding message, and the other four options are definitely not advocated in the text, 'There was no moral' is the best option.
15	C	Reader's personal judgement required. Look at the text as a whole to help form an opinion as to what type of text it is likely to come from. As the story is not factual, it must have come from 'a fictitious novel'. However, it does not have any scientific themes, so option 'c' is the best option.

Verbal Reasoning

Verbal Reasoning Tests

Paper 7 (pages 27–31)

1–5 Arrange the words in a grid to make it easier to put them in alphabetical order.

P	R	O	S	P	E	C	T	
P	R	O	S	P	E	R		
P	R	O	V	I	N	C	E	
P	R	O	V	I	S	I	O	N
P	R	O	V	O	K	E		

1 **PROSPECT**
2 **PROVOKE**
3 **PROVINCE**
4 **PROVISION**
5 **PROSPER**
6 **crisp** 'Stale', which means 'old' and 'beginning to deteriorate', is the most opposite of 'crisp', which can mean 'fresh' and 'new'.
7 **listener** 'Speaker', which means 'someone who is speaking', is the most opposite of 'listener', which can mean 'someone who is listening to a speaker'.
8 **idle** 'Busy', which means 'engaged in activity', is the most opposite of 'idle' which means 'inactive'.
9 **shorten** 'Extend', which means to 'make longer', is the most opposite of 'shorten', which means to 'make shorter'.
10 **connect** 'Break', which can mean to 'separate' or 'fracture', is the most opposite of 'connect', which means to 'join together'.
11 **ACT** DISTR**ACT**ED
12 **ILL** BR**ILL**IANT
13 **ROW** TH**ROW**N
14 **OWE** ALL**OWE**D
15 **FOR** BE**FOR**E
16 **l** life, light, lice, load, lurk
17 **f** fast, fine, fume, field, film
18 **p** pave, pear, push, port, paste
19 **h** hall, hand, hunch, hook, helm
20 **c** cable, cast, coast, cold, cube
21 **i** far, ideal
22 **y** chill, yearn
23 **t** sage, stuck
24 **r** cove, drawn
25 **u** fed, pound

6–30 The code is made by moving each letter forward by one place in the alphabet and changing from capital letters to lower case ones. It might be helpful to draw a chart:

A	B	C	D	E	F	G	H	I	J	K	L	M
b	c	d	e	f	g	h	i	j	k	l	m	n
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
o	p	q	r	s	t	u	v	w	x	y	z	a

Place each of the codes or words in a table, as shown, to help work out the answers:

26 **gpsl**
27 **tqppo**
28 **dvq**
29 **KNIFE**
30 **SAUCER**
31 **B** It may be helpful to draw a diagram to help with relative positions:

	C	
D	A	
		B

2–36 Start with POUCH as this is the only five-letter word. From this we know that POUCH = 64782. That tells you that P = 6, O = 4, U = 7, C = 8 and H = 2. Next is HOPS which is the only other word containing the letter 'O'. HOPS is 2465, so S = 5. PUSH must therefore be 6752 and CHAP = 8236. CHOPS can now be worked out.

P	O	U	C	H	S	A
6	4	7	8	2	5	3

32 **6752** is PUSH
33 **2465** is HOPS
34 **8236** is CHAP
35 **64782** is POUCH
36 **82465** is CHOPS
37 **courage, bravery** Both words mean to show 'fearlessness' and 'daring'.
38 **glance, look** Both words mean to 'catch sight of'.
39 **halt, stop** Both words mean to 'come to a standstill'.
40 **cross, angry** Both words mean to be 'infuriated'.
41 **tint, colour** Both words mean 'tone' or 'hue'.
42 **brief, amazing** 'Brief' means the same as 'short', just as 'incredible' means the same as 'amazing'.
43 **fruit, vegetable** A pear is a fruit just as a cabbage is a vegetable.
44 **listening, tasting** An ear is used for listening, just as a mouth is used for tasting.
45 **active, pity** 'Active' has a similar meaning to 'vigorous', just as 'sympathy' has a similar meaning to 'pity'.
46 **fragile, squander** 'Fragile' is the opposite of 'tough', just as 'save' is the opposite of 'squander'.
47 **he** soothe, healthy
48 **on** upon, once
49 **ce** office, cereal
50 **us** circus, usual
51 **in** plain, invent
52 **ROBIN**
53 **CINEMA**
54 **MAGICIAN**
55 **CAMEL**
56 **COMMENCE**
57–61 Refer to Paper 1 Questions 50–54 on how to complete this type of question.
57 **65, 36** There are two sequences which alternate. In the first sequence, starting with 75, the number decreases by 5 each time (75, 70, 65, 60). In the second sequence, starting with 28, the number increases by 4 each time (28, 32, 36).
58 **24, 30** Each number in the sequence increases by 6 (6, 12, 18, 24, 30, 36, 42).
59 **85, 103** In this sequence the number added increases by 2 each time: +2, +4, +6, +8 etc.
60 **125, 50** Each number in the sequence decreases by 25.
61 **12, 16** There are two sequences which alternate. In the first sequence, starting with 6, the number increases by 3 each time (6, 9, 12, 15). In the second sequence, starting with 8, the number increases by 4 each time (8, 12, 16).
62 **SPIN**
63 **PIER**
64 **STAGE**
65 **CHEAT**
66 **TRAP**
67 **day, month** The shortest month of the year is February.
68 **chair, table** I reserved a table for two at the restaurant.
69 **cheap, expensive** Her father complained that the telephone bill was too expensive.
70 **tail, claws** The kitten scratched our new chair with her claws.
71 **tea, water** She boiled just enough water in the kettle to make a hot drink.
72 **In** which year **was** the big storm?
73 It is important that **each form** is filled in completely.

74 **Some** friends **from** Australia are visiting.
75 We picked **up** shells **on** the beach.
76 I **admit** that I have **made** a mistake.
77–80 Give two marks for each correct crossword.

77–78

	P		D		C
L	A	V	I	S	H
	V		S		E
D	E	F	U	S	E
	R		S		R
A	S	S	E	T	S

79–80

	B		B		S
D	O	C	I	L	E
	T		T		A
W	H	I	T	E	R
	E		E		C
D	R	E	N	C	H

Paper 8 (pages 32–36)

1 **tadpole** A caterpillar is the younger stage of a butterfly, as a tadpole' is the younger stage of a 'frog'.
2 **kind** 'Vacant' is the opposite of 'occupied', as 'kind' is the opposite of 'mean'.
3 **keys** A clock has hands, as a piano has keys.
4 **suggest** 'Fair' means the same as 'just', as 'suggest' means the same as 'imply'.
5 **export** 'Fact' is the opposite of 'fiction', as 'import' is the opposite of 'export'.
6 **water** watercress, watercolour, waterfall, watermelon
7 **land** landlady, landmark, landslide, landlord
8 **day** daylight, daybreak, daydream, daytime
9 **rain** raincoat, rainbow, raindrop, rainfall
10 **wind** windfall, windburn, windmill, windbreak
11 **snowdrop** All the words are types of flower.
12 **wail** All the words are concerned with loud voices.
13 **soar** All the words mean to move in an upwards direction.
14 **spring** All the words are names of seasons.
15 **rain** All the words are concerned with types of weather linked with water.
16 **RAT** CELEB**RAT**E
17 **WIN** CHE**WIN**G
18 **OUR** COL**OUR**FUL
19 **TEN** AT**TEN**D
20 **EAT** BR**EAT**HE

21–24 Give two marks for each correct crossword.
21–22

	H		H		L
S	A	V	A	G	E
	N		L		A
E	D	I	T	E	D
	L		E		E
N	E	A	R	E	R

23–24

	C		R		S
C	R	O	U	C	H
	E		M		I
M	A	R	B	L	E
	K		L		L
A	S	C	E	N	D

25–30 Firstly, 'VASES' must be 25979 as it has the same third and fifth number. Thus V = 2, A = 5, S = 9 and E = 7. 'LEAVE' = 37527 because of the position of the number 7. This means L = 3. RIVAL = 86253 because it has V (2) as third letter. This leaves SLIMY = 93641. This code can best be shown in a table:

A	E	I	L	M	R	S	V	Y
5	7	6	3	4	8	9	2	1

25 **86253** is RIVAL
26 **25979** is VASES
27 **37527** is LEAVE
28 **93641** is SLIMY
29 **RAIL**
30 **REVEAL**
31 **TS, KJ** Both letters in each pair move back by three places.
32 **FR, GS** Both letters in each pair move forward by one place.
33 **MH, KI** The first letter in each pair moves back by two places. The second letter in each pair moves forward by one place.
34 **PT, UY** Both letters in each pair move forward by five places.
35 **KO, QW** The first letter in each pair moves forward by three places. The second letter in each pair moves forward by four places.
36 **bleed** There is no 'd' in BREAKABLE.
37 **tests** There is only one 's' in POTATOES.
38 **overstay** There is no 'a' in CONTROVERSY.
39 **ginger** There is no 'r' in BELONGINGS.
40 **leader** There is only one 'e' in DREADFUL.

41–45 Refer to Paper 2 Questions 32–36 on how to answer this type of question.

41 **burnt, oven**

42 **Tired, sleep, school**

43 **dog, kennel, raining**

44 **question, plan, answer**

45 **pleased, holiday, summer**

46 **k** bark, kettle; walk, know

47 **n** bean, nest; grin, nose

48 **e** face, ease; sale, east

49 **b** rob, bold; comb, black

50 **t** fort, task; wart, tent

51–55 Use grids as shown below to help work out the missing word.

51 **HAVE**

1	2		
B	O	W	L

3	4		
R	E	A	D

1	2		
H	A	R	D

3	4		
V	E	S	T

52 **NOSE**

2			1
H	I	N	T

4		3	
W	E	A	K

2			1
O	P	E	N

4		3	
E	A	S	Y

53 **PALM**

		4	1
T	I	E	D

		2	3	
F	R	O	N	T

		4	1
L	I	M	P

		2	3	
S	T	A	L	E

54 **MOAN**

		3	4
B	A	L	L

1	2			
W	E	I	R	D

		3	4
L	E	A	N

1	2			
M	O	I	S	T

55 **STAR**

4		3		
P	R	A	Y	S

			1	2
P	A	T	C	H

4		3		
R	O	A	S	T

			1	2
W	R	I	S	T

56–58 Arrange the words in a grid to make it easier to put them in the correct alphabetical order.

D	E	S	C	E	N	D	
D	E	S	C	R	I	B	E
D	E	S	E	R	V	E	
D	E	S	I	R	E		
D	E	S	P	A	I	R	

56 **DESIRE**

57 **DESCEND**

58 **DESCRIBE**

59–60 These types of questions will need to be read more than once, as the information is not always given in the order you need to work it out in. A table is the easiest way to sort the information, like this:

	Time taken	Position	
A	7 mins	1st	This is the fourth calculation (9 – 2).
B	11 mins	3rd	This is the final calculation (7 + 4).
C	9 mins	2nd	This is the third calculation (12 – 3).
D	15 mins	5th	Begin calculating with D.
E	12 mins	4th	This is the second calculation (15 – 3).

59 D

60 9

61–64 Follow the rules of BIDMAS by completing any equations in brackets first.

61 **7** $(2 \times 3) + 1 = 6 + 1 = 7$

62 **2** $\frac{6}{3} = 6 \div 3 = 2$

63 **10** $(5 \times 4) \div 2 = 20 \div 2 = 10$

64 **9** $3 \times 3 = 9$

65 **Rings can be made of metal.** For this question you can only judge what is true based on the information given. As 'rings can be made of gold' and 'gold is a metal', the only sentence that must be true is 'Rings can be made of metal'. There is no evidence in the two sentences that other statements must be true. For example, although gold may be an expensive metal it is not stated in the two sentences.

66 **vague, certain** 'Vague' and 'certain' are most opposite because 'vague' means to be 'approximate', whereas 'certain' means 'in no doubt'.

67 **scatter, collect** 'Scatter' and 'collect' are most opposite because 'scatter' means to 'distribute', whereas 'collect' means to 'bring together'.

68 **satisfy, disappoint** 'Satisfy' and 'disappoint' are most opposite because 'satisfy' means to 'meet expectations' whereas 'disappoint' means to 'fail to meet expectations'.

69 **undermine, enhance** 'Undermine' and 'enhance' are most opposite because 'undermine' means to 'reduce effectiveness', often by a form of sabotage, whereas 'enhance' means to 'increase the effectiveness of something'.

70 **unusual, ordinary** 'Unusual' and 'ordinary' are most opposite because 'unusual' means 'uncommon' whereas 'ordinary' means 'common'.

71–75 Refer to Paper 1 Questions 16–20 on how to complete this type of question.

71 **insect**

72 **throughout**

73 **nomad**

74 **attempt**

75 **beam**

76–80 Refer to Paper 5 Questions 61–65 on how to answer this type of question.

76 **AMPYJ** To get from the word to the code, move each letter back by two places.

77 **CNKDK** To get from the word to the code, move each letter forward by two places.

78 **RIGHT** In this code treat the alphabet as a loop, e.g. W X Y Z A B C etc. To get from the code to the word, move each letter forward by four places.

79 **ICUFTAY** To get from the word to the code, move the first letters forward by one place, the second forward by two places, the third forward by three places, the fourth forward by four places, etc.

80 **BQDG** To get from the word to the code, move the first and third letters forward by one place; more the second and fourth letters back by one place.

80

Mixed Verbal Reasoning Questions with Comprehension

Test 17 — pages 61-64

1. B
The passage states that it was "illegal for women to go to university in Poland" and that Curie moved to France "to study at the University of Paris".

2. A
Bronya was Marie's sister, and the passage states that Marie was the "youngest of five children". Therefore, Bronya must have been older than Marie.

3. A
The passage states that Curie was born in November 1867 and received her first degree in July 1893. Therefore, Curie was 25 when she received her first degree.

4. C
Lines 14-15 state that Marie Curie succeeded "her husband's position after he died". 'Succeeded' is another way of saying 'inherited'. Marie Curie became a professor by inheriting the title from her husband after he died. So, it must be true that Pierre Curie was a professor at the time of his death.

5. D
The passage says that Curie received her first Nobel Prize in 1903, and that Pierre died in 1906.

6. C
The text states that Curie "created mobile X-ray units which she used on the front line", but it does not state that she discovered X-rays.

7. A
The passage states that the hospital offered "cancer treatments that Curie's discoveries had made possible", implying that this is why it was named after her.

8. ship
'ship' can mean 'to send' or 'a sailing vessel'.

9. clear
'clear' can mean 'able to be seen through' or 'easily understood'.

10. ground
'ground' can mean 'made into small particles' or 'the surface of the earth'.

11. frustrate
'frustrate' can mean 'to annoy' or 'to prevent from succeeding'.

12. brave
'brave' can mean 'courageous' or 'to withstand something'.

13. faint
'faint' can mean 'to become unconscious' or 'not vivid'.

14. deposit
'deposit' can mean 'a sum of money paid in advance' or 'to set down in a specific place'.

15. sleeping
The words can be rearranged into the sentence 'I always brush my teeth before going to bed.'

16. yesterday
The words can be rearranged into the sentence 'I hope that the interview goes well tomorrow.'

17. cook
The words can be rearranged into the sentence 'He had always enjoyed baking cakes at the weekend.'

18. last
The words can be rearranged into the sentence 'My friends aren't planning on going abroad this year.'

19. she
The words can be rearranged into the sentence 'I have never thought that they were completely innocent.'

20. it
The words can be rearranged into the sentence 'The school was closed for three days because of snow.'

Non-Verbal Reasoning

Section 1

1. C

The alike figures are right angled triangles with a black square inside.

2. D

The alike figures have one large shape with two identical small shapes overlapping the large shape.

3. E

The alike figures all have 10 lines.

4. B

The alike figures have two identical shapes next to each other.

5. C

The alike figures contain shapes with a total of ten sides.

6. A

The alike figures have a large shape that is dotted and contain two **different** shapes in side. One shape is dotted and other is bold black line. D has similar outside and inside shape.

7. C

The alike figures have a square at the front and circle at the back.

8. B

The alike figures are all a rotation of the same shape.

9. E

The alike figures all have 4 lines, 3 corners and one arrow pointing down.

10.C

The alike figures all have a white and black shape connected with a line. The small dashes on the line are the same amount as the sides of the white shape.

11.C

The alike figures have 3 identical shapes inside a large square. The shapes are shaded black and add up to a whole.

12.A

The alike figures all have small shapes on top of a bold lined black square. The number of sides on the small shape decreases going clockwise.

Section 2

13.B

Inside arrows point in the opposite direction from the outside arrows.

14.D

Inside shapes have 6 lines.

15.E

Inside shapes point opposite direction of outside shapes (If outside dot is on the top, then inside it will be down and if its on the right the outside will have it on the left.)

16.C

Inside shapes have one less side than the outside shapes.

17.A

Inside arrows point opposite direction from the outside arrows.

Outside shapes has been rotated 45 degrees anticlockwise from the inside shapes.

18.C

Inside has 2 more dots than the outside.

19.E

The inside and outside have the same white shapes.

20.B

Inside shapes are the same, just rotating.

21.D

Inside Shapes all have white squares leaving you with A, B and D.

Insides shapes next to each other do not have the same shading of dots, which rules out A and B.

22.C

Inside is a reflection of the outside and the shading is switched.

23.A

Outside upper and lower right have the same amount of shapes.

Outside upper and lower left have the same amount of shapes.

So logically outside top and bottom would have same number of shapes

Top half of triangles include squares.

24.B

Going anti-clockwise from the inside shape by the square, the amount of lines inside the hexagons go 2, 2, 3, 4, 4, so logically the missing box would have 5 lines inside, which only option B has.

Section 3

25.B

B is a reflection, the rest are rotations.

26.E

All shaded squares have the same direction of shading.

27.E

Outside shapes should have one more side than number of dots inside.

28.C

Arrows rotate 45 degrees clockwise, in C, 3rd to 4th arrow is not a rotation of 45 degrees

29.D

Arrows should only connect at the ends

30.E

Both inside shapes should be same shading.

31.D

If shading is going right and up, black shape is on top.

If shading is going left and up, white shape is on top.

32.A

Opposite black circle there is an equilateral triangle.

33.E

Lines at bottom left + 1 is how many lines are inside the rectangles.

34.B

There should be 7 black squares.

35.E

E is a reflection, the rest are rotations.

36.C

All shapes have a white star except C.

Section 4

37.C

U= direction of lines in shape P= position of black circle.

38.E

H= length of line S= position of black triangle.

39.B

J= position of black L shape D= no small black square.

40.A

Q= direction of the 3 shapes Z= orientation of the white heart.

41.D

B= number of sides of shape A= direction of lines.

42.A

X= colour of bottom triangle B=direction of lines in top triangle.

43.C

Q= bottom shape C= top shape.

44.E

F= style of arrow S=number of lines.

45.B

B= amount of small shapes Y= shape.

46.C

D= number of lines of shape R= pattern inside the shape.

47.D

J= shape T= shapes joined together.

48.B

F=position of the circle L= circle placed in 3rd rectangle.

Section 5

49.A

Top 2 shapes are switched and upside down, follow same rule with bottom shapes.

50.C

Going from top to bottom all lines except the middle horizontal and vertical lines are left.

51.B

On the right from top to bottom;

Middle shape has been reflected and shading has switched.

Bottom shape is reflected.

Following these rules only the top half of the L shape will be in the missing square and bottom lines will be in the missing shape.

52.D

On the left from top to bottom the arrows are;

Opposite, Same , Same, Opposite, Same, Same.

Follow these rules on the right.

53.C

Going across, shapes get smaller, meaning it has to be B or C as they are the only correct size.

All shapes have at least one line going through them, so it must be C.

54.B

The first column is dots on all the vertices of the shape in the second column.

55.B

Going across the rows, number of sides increase by 3.

56.E

Two of the boxes in each row will when combined, turn the entire shape black.

E completes the box in the 2nd row and 3rd column to make it all black.

57.A

Size increases across the rows.

Shading alternates between diagonal left, diagonal right and black in each of the rows.

The middle row has diagonal right and black shading, so what's missing must be diagonal left shading.

58.B

In the first column, to create the bottom picture.

the 2 shapes in the top left and top right of the bottom box are from the first two shapes on the left of the top box and shaded in.

the shape at the top right of the bottom box is from the middle shape on the right on the top box.

The shape at the bottom left of the bottom box is from the 2 lines in the middle of the top box combined.

The middle shape in the bottom box is from the 3rd shape on the right of the top box.

Following these rules on the second column will give you B.

59.C

In each row to make the third box from the first box;

The top left shape on the 1st box is the 2 shapes in the 1st column of the 3rd box.

The bottom left shape on the 1st box is the 2 shapes in the in the 2nd column of the 3rd box.

The shading in the 1st and 3rd boxes are the same.

60.D

In the first row to make the 1st box from the 2nd box;

The outside shape is rotated 90 degrees anticlockwise.

The middle shape is multiplied into 4 of that shape and they are all 90 degrees rotations of each other, and the dot is only reflected horizontally and the shading goes black.

A is wrong because the middle shape is rotated.

Quick Lesson Recap

1) Convert $\frac{16}{25}$ into a percentage

64%

2) Convert $\frac{11}{20}$ into a percentage

55%

3) Workout $\frac{4}{5}$ of 975

780

4) Workout $\frac{3}{7}$ of 539

231

5) $\frac{3}{8} + \frac{3}{4} =$

9/8

6) $\frac{2}{7} + \frac{4}{5} =$

38/35

7) $\frac{7}{11} - \frac{2}{7} =$

27/77

8) $\frac{8}{9} - \frac{3}{5} =$

13/45

9) Workout 60% of 750

450

10) Workout 45% of 550

247.5

10

Homework – Vocabulary to memorise

Vocabulary 11

Exercise A

1. Accommodate
2. Justice
3. Mutate
4. Utter
5. Entail
6. Bustle
7. Metropolis
8. Sordid
9. Confront
10. Fragile

Exercise B

1. Fragile
2. Entail
3. Accommodate
4. Mutate
5. Confront
6. Utter
7. Metropolis
8. Justice
9. Bustle
10. Sordid

Anagrams

Test 11

1.	o	His hoarse cough sounded really painful.
2.	x	I expect you to do extra chores next week.
3.	s	Your test results put me to shame.
4.	a	She had an air of confidence about her.
5.	n	I got nervous when I heard thunder in the distance.
6.	v	He will start driving lessons when he is seventeen.
7.	k	The kitchen is in drastic need of a makeover.
8.	m	It's sensible to try to avoid making enemies.
9.	f	The foggy conditions made me fearful of driving the car.
10.	r	There was a big turnout and we raised one hundred pounds.

Related Words

Test 11

1 observes

Solution: The words in the top row of the grid are all homophones. Each word in the bottom row is a synonym of the word directly above it (e.g. 'sees' and 'observes' are synonyms – both are in the third-person singular form of the verb and are in the present tense.)

2 ants

Solution: The words in the top row of the grid are collective nouns for the animals directly below them (e.g. a 'colony' of 'ants').

3 hen

Solution: The words in the top row of the grid are all male animals or birds. The words in the bottom row are the females of the species (e.g. 'drake' and 'hen' and male and female ducks).

4 pot

Solution: The words in the top row of the grid are all typical containers for the food or drinks directly below (e.g. a 'pot' of 'honey').

5 de

Solution: The three prefixes in the top row of the grid can be used with all three of the words in the bottom row to form new words ('ensign', 'entail', 'encode', 'design', 'detail', 'decode', 'resign', 'retail', 'recode').

6 impudent

Solution: The words in the top row of the grid are all antonyms of the words directly below (e.g. 'impudent' is an antonym of 'courteous').

7 actor

Solution: The middle word in each row of the grid begins with the last three letters of the first word and ends with the first three letters of the third word.

8 Dutch

Solution: The words in the top row of the grid are the names of countries. The words in the bottom row are one of the main languages spoken in the country directly above.

9 further

Solution: The words in the top row of the grid are all adjectives. Each word in the bottom row is the comparative form of the adjective directly above (e.g. 'far' and 'further').

10 fascinating

Solution: The words in the top row of the grid are all positive adjectives. Used with the nouns directly below them, they are all examples of alliteration as both words begin with the same sound (e.g. 'fascinating' and 'photographers').

Rhyming Synonyms

Test 11

1. E fussy
Atlantic → pedantic → fussy

2. E confused
snaffled → baffled → confused

3. A hypocrisy
simplicity → duplicity → hypocrisy

4. B placate
specify → pacify → placate

5. C enthusiastic
meagre → eager → enthusiastic

6. E hopeful
pessimistic → optimistic → hopeful

7. D appease
palm → calm → appease

8. B plausible
conceivable → believable → plausible

9. E stubborn
inedible → indelible → stubborn

10. E sociable
introvert → extrovert → sociable