

Year 7 Mathematics Examination Preparation Sheet 2017

General Information for Candidates

The end-of-year assessment in mathematics consists of two one-hour examinations, which will be given equal weighting on your end-of-year report. Paper 1 is a non-calculator paper; paper 2 is a calculator paper. Each paper is worth a total of 50 marks.

You will need a ruler, a blue/black pen, a pencil, an eraser, a protractor and compasses for both papers, and obviously a scientific/mathematical calculator for the second one. (The recommended CASIO FX83GT Plus models are available from your mathematics teacher for £8.)

You will be writing your answers on the question paper in the spaces provided. There will be enough space to set out your method clearly in the way that your teacher has shown you in class. You need to realise that **VERY FEW MARKS WILL BE AWARDED FOR MERELY WRITING DOWN A CORRECT ANSWER WITH NO INDICATION OF METHOD**. We are **not** looking for rough jottings – we want to see that you can follow the procedures and formal mathematical layout that your teacher has shown you during the year. This applies just as much to the calculator paper as to the non-calculator paper.

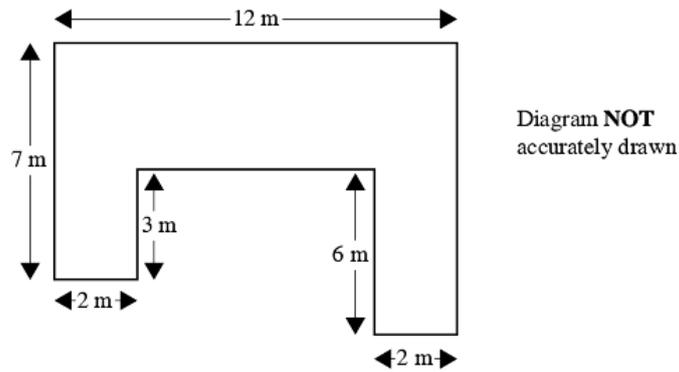
Here are some revision tips!

- (1) **Don't just read through the textbook!** The only way to revise maths is to do maths. You will do much better spending 20 minutes doing maths questions than spending two hours just reading a textbook.
- (2) **Use the internet.** You can use mymaths or other videos/websites. However, if you are not strict with yourself you may easily get distracted and not do the work you set out to do.
- (3) **Don't just practice the topics you can do.** Unfortunately the test will cover most topics! Although it can be painful, work your way through the topics that you struggle with, because it is much better to struggle on them at home than it is to struggle in the test.
- (4) **Make sure you ask for help.** If you are stuck on a topic or a question, then ask one of the people from your class, or your teacher, or someone at home, or look on the internet.
- (5) **Practice doing questions under exam conditions.** Get someone to pick you a set of questions from your textbook, or get some from a maths website, and try doing them in silence, with no help, for a fixed amount of time.
- (6) **If it works for you, try revising with a friend for a bit of the time.** You will find that one of you understands one topic more, whilst the other is a bit of an expert on another. Just by explaining things to a friend, you will find that your understanding increases, and likewise you might learn a different way of thinking about and understanding a topic.
- (7) **Most important of all, try not to worry.** A little worry is not a bad thing as it keeps you focused, but revision certainly shouldn't be a stressful time. It should be a time where your brain gets chance to sort all the information it has been bombarded with and make sense of everything.

If you follow the tips above, you should find that revising for maths (or any other exam) is not that painful! The practice questions below are similar to those you will be expected to answer.

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12.



The diagram shows a paved surface. All the corners are right angles. Work out the area of the paved surface.

13. Solve the equations

(a) $q - 26 = 43$ (b) $2a + 15 = 33$ (c) $55 - h = 23$

(d) $3x + 12 = x - 2$ (e) $3(x + 2) = 39$ (f) $\frac{(3x+1)}{4} = 4$

14. Convert these measurements to the required units

(a) 150cm to m (b) 5000ml to l (c) 23000mm to m

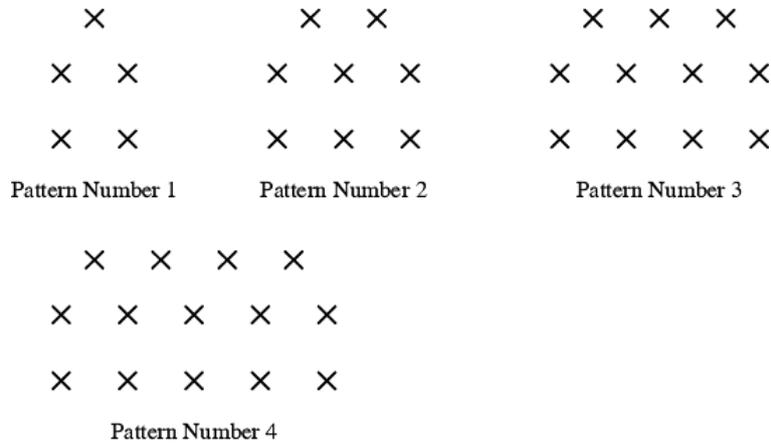
15. Round these numbers to the accuracy given.

(a) 13.4534 (1dp) (b) 45.1982 (2dp) (c) 0.00231 (3dp)

16. work out, giving your answer in the simplest form:

(a) $\frac{5}{7} + \frac{3}{8}$ (b) $\frac{3}{4} - \frac{1}{3}$ (c) $4\frac{2}{3} + 3\frac{1}{5}$

17. Here are some patterns made with crosses:



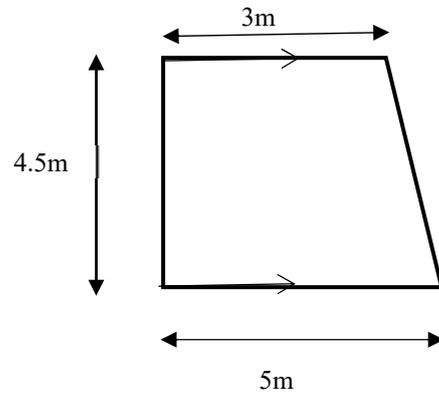
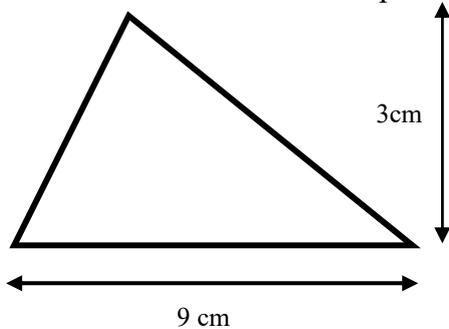
- (a) Draw Pattern Number 5. How many crosses does it have?
 (b) Copy and complete the table below.

Pattern number (n)	1	2	3	4	5	6
Number of crosses (C)	5	8	11	14		

- (c) Work out which Pattern Number has 26 crosses.
 (d) Work out the number of crosses in Pattern Number 10.
 (e) Write down a formula for the number of crosses, C , in terms of the Pattern Number, n .

18. Noah works at a leisure centre. He carries out a survey to find out which age groups use the centre the most. He writes down the ages of the people who visit the centre one morning. Here are his results:
 38, 54, 40, 12, 14, 14, 60, 44, 23, 31, 56, 15, 13, 6, 4, 2, 28, 27, 57,
 18, 17, 33, 46, 50, 23, 31, 47, 9, 6, 11, 16, 69, 33, 25, 14, 13, 36, 13
- Make a frequency table using groups 0-9, 10-19 and so on.
 - Draw a bar chart for this data. (Remember to leave gaps between the bars.)
 - How many people visited the leisure centre?
 - Which age group used it the most?

19. Calculate the area of these shapes.



CALCULATOR PAPER

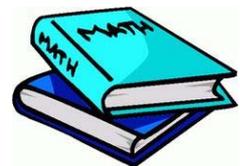
You must write down all stages in your working.

- Work out
 - $\frac{5}{8}$ of £9.60
 - 24% of 35 metres
 - Change $\frac{3}{8}$ into
 - a decimal
 - a percentage
 - Express 44% as
 - a decimal
 - a simplified fraction
- Simplify
 - $a + a + a + a$
 - $4p + 2p$
 - $7t + 3s - 5t + s$

22. Here are Priya's last 10 maths homework marks.

5, 5, 3, 5, 7, 11, 5, 11, 7, 11

- Write down the modal mark.
- Work out the median mark.
- Work out the range of the marks.
- Work out the mean mark.



- Clemencie opens a savings account and puts in £ 60. Interest of 2% is added at the end of each year. Work out how much money is in Clemencie's account after one year if no money is taken out.
- Work out the y-coordinates for $y = 3x + 1$. (You don't need to fill in the two middle rows).

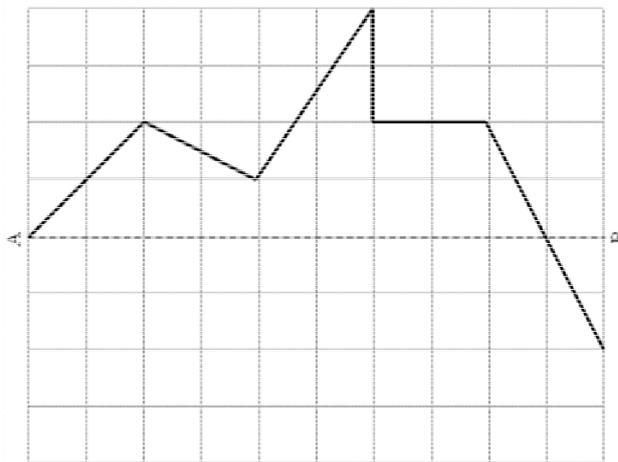
x	-2	-1	0	1	2	3
$3x$						
+ 1						
y	-5			4		10

- Use the values in your table to draw the straight-line graph of $y = 3x + 1$ for values of x from -2 to 3.
- Use your graph to find the value of x when $y = 6$.

25. Simplify these fractions

- $\frac{30}{12}$
- $\frac{330}{440}$
- $\frac{27}{48}$

26. Carefully copy and complete the figure on the right so that AB is a line of symmetry.



27. (a) What is 35% of 40m?
 (b) What is 2.5% of £1200?
 (c) Increase £220 by 30%
 (d) The prices in a shop go up by 5%. A top used to cost £13.40. What does it cost now?

28. In the diagram, PQ is a straight line.

- (a) (i) Work out the size of the angle marked x° .
 (ii) Give a reason for your answer.
 (b) (i) Work out the size of the angle marked y° .
 (ii) Give a reason for your answer.

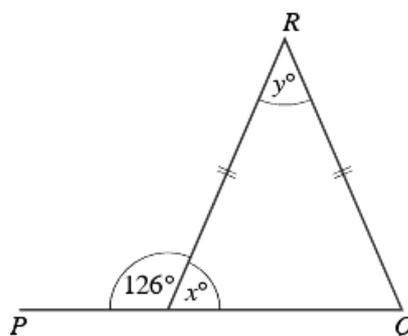
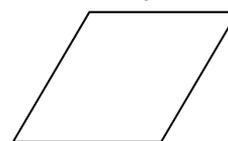
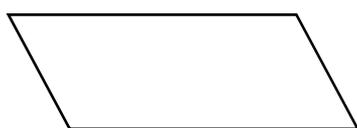


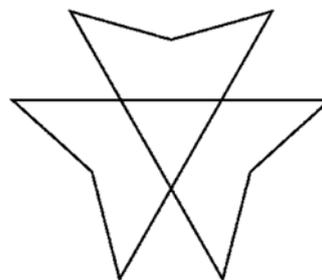
Diagram **NOT** accurately drawn

29. (a) Copy the following shapes and, using dashed lines, draw in all their lines of symmetry.



- (b) Give the most specific mathematical name for each shape.
 (c) State the order of rotational symmetry of each shape.

30. (a) Write down the order of rotational symmetry of this shape:



- (b) Copy the shape and mark and label
 (i) any one **acute** angle with a letter **A**
 (ii) any one **reflex** angle with a letter **B**
 (iii) any one **obtuse** angle with a letter **C**

31. Use your calculator to work out the value of this, giving your answer to 3 decimal places:

$$\frac{2.1^2 + 3.22}{4.5} + 1$$

32. A shop sells different sound systems on credit. The weekly payment is w pounds.

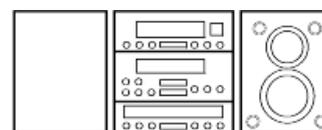
The total amount paid, C pounds, is given by the formula $C = 10w + 35$.

The weekly payment for a micro sound system is £14.

(a) Work out the total amount paid for a micro system.

The total amount paid for a mini sound system is £260.

(b) Form an equation and solve it to find the weekly payment for a mini sound system.



33. Hannah has three packets of sweets: small, medium and large.

There are n sweets in the small packet.

There are **twice** as many sweets in the **medium** packet as there are in the **small** packet.

(a) Write down an expression, in terms of n , for the number of sweets in the **medium** packet.

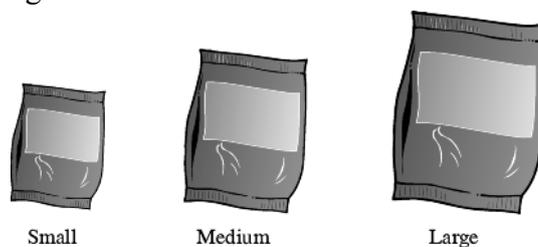
There are 15 more sweets in the **large** packet than in the **medium** packet.

(b) Write down an expression, in terms of n , for the number of sweets in the **large** packet.

Hannah opens all the packets and counts the sweets. **Altogether**, there are 110 sweets.

(c) Form an equation in n and solve it.

(d) How many sweets were there in the **large** packet?



34. Conor buys 15 pens at a total cost of £2.55.

(a) Work out the cost of 9 pens.

The probability that a pen will be faulty is 0.2.

(b) Work out the probability that a pen picked at random will **not** be faulty.

35. (i) Copy out this grid. Draw and label the following lines

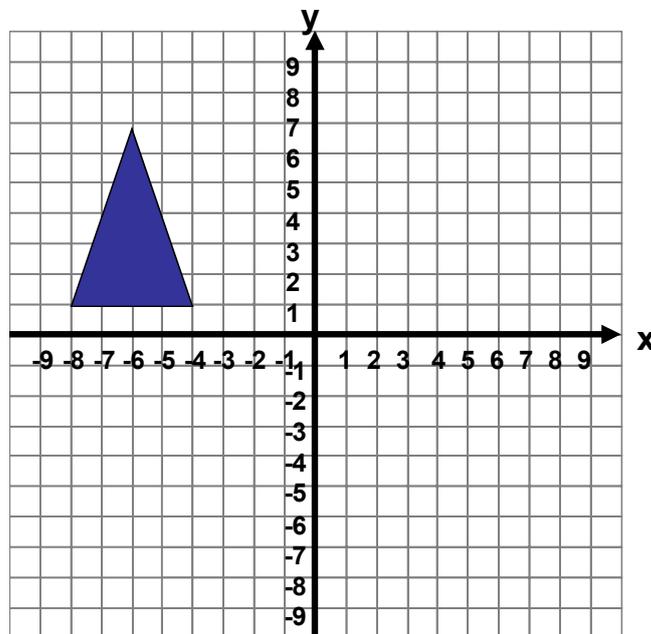
(a) $y = x$.

(b) $y = -x$

(c) $y = 5$

(d) $x = 6$

(ii) what is the equation of the line of symmetry?



36. Triangle ABC has a length AB of 8cm.

Angle BAC is 65° and angle ABC is 85° .

Draw the triangle to scale and measure the length BC and AC.

37. Calculate the angles x and y in this diagram. It is NOT drawn to scale! State which rule you have used.

