Westbourne House School
Revision – Easter Term

Y8 MATHS REVISION CHECKLIST

The Exam(s) will consist of:

- Three papers:
  - Non-calculator Paper – duration 60 minutes
  - Calculator Paper – duration 60 minutes
  - Maths Aural – duration 20 minutes (paper is done during a maths lesson)

Equipment you will need for the exam:

- Ruler (15cm and 30cm)
- Pencil
- Eraser and pencil sharpener
- Scientific Calculator (for Calculator Paper only)
- Compass
- Protractor

TOPIC / PAPER	WHAT TO REVISE	DONE?

Non-calculator Paper	• Calculations (including with decimals) - add, subtract, multiply and divide
	• Reverse calculations
	  ○ i.e. if 135 x 46 = 6210, what is 621 ÷ 46 =
	• Fractions <-> decimals <-> percentages
	• Percentages
	  ○ percentage of an amount
	  ○ increasing and decreasing an amount by a percentage
	• Fractions
	  ○ of an amount
	  ○ adding/subtracting/multiplying and dividing
	• BIDMAS
	• Prime factors (cherry trees)
	• Sequences
	• Algebra
	  ○ Substitution
	  ○ Equations
	  ○ Extended thinky questions – usually writing equations.
	• Probability
	• Area of rectangles, triangles, circles and other compound shapes.
	• Perimeter of polygons.
	• Conversion graphs
	• Pie Charts
	• Angles between parallel lines, in triangles, along a line, round a point.	

	• Transformations – rotation, reflection, translation and enlargement.	

Calculator Paper	• Rounding - significant figures and decimal places
	• Ratio
	• Percentage
	  ○ profit and loss
	• Speed/Distance/Time
	• Algebra
	  ○ Simplify
	  ○ multiply out brackets
	  ○ factorise
	  ○ wordy algebra questions
	  ○ continuing patterns
	• Conversions ie. 1 inch = 2.54 cm, 1 foot = 12 inches, what is 21 feet in metres?
	• Averages
	  ○ mode, mean, median, range
	  ○ total amount given mean
	• Circle - area and circumference (and parts of circles)
	• Drawing nets of 3-D shapes – leading to volume and surface area questions
	  ○ Volume and litres
	• Angles in a polygon.
	• Plotting straight lines (level 3 also need to be able to plot quadratics)
	• Bearings	

Paper 3 Maths Aural	• Exam taken in classroom under exam conditions. • Questions are read out by the teacher and pupils are allowed to show their workings. • No calculators to be used.	

NOTES/TIPS:

- Revise by practising the questions below, using your notes books and appropriate websites like www.mymaths.co.uk
- Most topics can come up in either or both papers; however, normally the topics listed above are on each paper
- On the Calculator Paper the topics are more "wordy" and require more problem solving
- Workings are essential in both papers. It should be assumed that any question with more than 1 mark requires at least one line of working. In the calculator paper this means writing the calculation that you are about to type into your calculator down. Workings should be clearly presented and not "doodle" like. All workings should be logical.
- For any further information or guidance about revision or the actual exam, please contact the Head of Maths – Mrs Barbara Langford (blangford@westbournehouse.org)

Practice Questions – Non-calculator Paper:

Calculations (including with decimals) - add, subtract, multiply and divide

1. The maths department last year gave out a total of 725 stickers. Mrs Low gave out 377. How many did the rest of the department give out?
2. From the remaining stickers the other 3 teachers all gave out equal amounts. How many did they each give?
3. If stickers come in sheets of 50 stickers. How many sheets does the department need to buy?
4. If a sheet of stickers cost £1.06 including VAT. How much does the department spend on stickers?

Reverse Calculations

5. i) If 178 x 48 = 8544,
   - what does 8544 ÷ 48 =
   - what does 1.78 x 4.8 =
   - what does 8544 ÷ 1.78 =

   ii) Given that 21 = 3 x 7, divided 3^2 x 5 x 7 by 21

   iii) Calculate
   - 7 – 6 x 2 + 3
   - 3 – 5 + 8
   - $4^1 + 3^2 + 2^3 + 1^4$

Fractions <-> decimals <-> percentages

6. Write 22% as a fraction in its lowest terms
7. Write $\frac{7}{20}$ as a decimal
8. What is $\frac{4}{5}$ as a percentage
9. How many quarters are there in $2\frac{1}{2}$?

Percentages

10. Bob pays £8.00 for a CD, 15% of that price is tax. How much tax is he paying?
11. John measures out 30g from a 1kg bag of sugar. Write 30g as a percentage of 1kg.
12. A jacket is bought for £30 and sold for £35. What is the percentage profit?

Fractions

13. Fred wins $\frac{3}{8}$ of the races he enters, if he enters 48 races. How many does he win?

14. Evaluate:

$$\frac{4}{5}+\frac{3}{4}$$

$$\frac{4}{5}\times\frac{3}{8}$$

$$\frac{1}{4}\div\frac{3}{8}$$

$$3\frac{1}{4}-1\frac{3}{10}$$

15. Extra maths lessons are $\frac{2}{3}$ of an hour.
    a) How long do 8 lessons take?
    b) If I had 20 hours of extra maths lessons. How many extra lessons have I had?

<u>Prime factors (cherry trees)</u>

16. Find the prime factors of 150.
    a) What is the smallest number you can multiply 150 by to make a perfect square?
    b) What is the highest odd factor of 150?
    c) Given that $336 = 2^2 \times 3 \times 7$ what is the largest common factor of 336 and 150?

<u>Sequences</u>

17. If a sequence starts 1, 5, 9, 13 .....
    a) what are the next 3 terms?
    b) what would the 12th term be?
    c) what would the n^{th} term be ? (Level 3 only)

<u>Algebra</u>

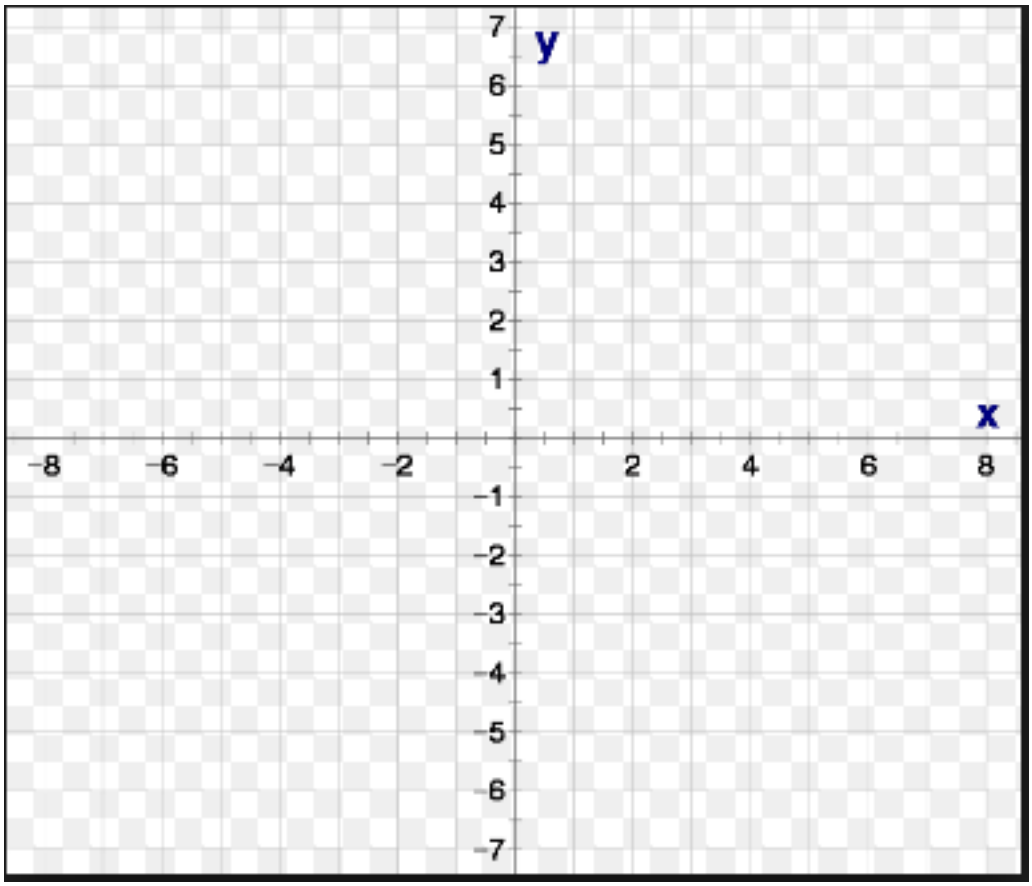
18. If a = 2, b = -3 and c = 5 (substitute the values)
    a) $3a + c =$
    b) $3c + b^2 =$
    c) $a - b =$
    d) $(a - c)^2 =$
    e) $4ac^2 =$
    f) $3a^2 + b^2 =$

19. Solve the following equations:
    a) $3a = 9$
    b) $\frac{a}{3} = 9$
    c) $4x = 2$
    d) $4x + 5 = 25 - x$
    e) $3x + 2 = -12$
    f) $4(x + 5) = 38$

Probability

20. A number is chosen at random from the integers 21 to 40 inclusive.
    a) What is the probability that it is a square number?
    b) What is the probability that it is an even multiple of 5?

Transformations



21.

a) Plot the following points on the grid above. (2,1) (4,2) and (1,4). Join the points to form triangle P
b) Draw and label the line x = –1.
c) Reflect the triangle P in the line x = –1
d) Rotate the triangle P through 90^0 clockwise about the origin.
e) What translation moves triangle P so that the obtuse-angled vertex is at the point (-2,-2)?

Practice Questions – Calculator Paper:

Rounding - significant figures and decimal places

1.
    a) Round each of the values to 1 significant figures and estimate the answer:

$$\frac{191.8 \times 6.2}{28.5}$$

    b) Using your calculator find the exact value of the same equation (as above)
    c) Write your answer to 2 decimal places
    d) Write your answer to 3 significant figures

e) Given that $x = \frac{\sqrt{a}}{b}$ find the value of x when a=9.8 and b= 4.7. Give your answer correct to 3 decimal places.

Ratio

2. Flowers are planted in the ratio of 5 red poppies to 3 yellow poppies.
   a. If a small bed of flowers has 25 red poppies, how many yellow poppies are there?
   b. If a total of 56 flowers are planted, how many are yellow?
   c. If there are 10 more red poppies than yellow, how many are there in total?

Percentage - profit and loss

3. A flight to Gibraltar costs £200. Last year it cost £165. What was the percentage increase?

Speed/Distance/Time

4. Gemma can run 200m in 36 seconds. What is this in kilometres per hour?
5. A car travels at 62 kilometre per hour.
   a) How far would it travel in 2 hours 20 mins?
   b) How long would it take to travel 684 kilometres?
   c) How fast is this in metres per second?

Algebra

6. Simplify:
   a) $4a - 8b + 6a + 9b$
   b) $4a^2 \times 7ab$

7. Multiply out brackets and simplify where necessary:
   a) $3(x + 4)$
   b) $3 + 7(2x - 5)$
   c) $4 - 2(x - 6)$

8. Factorise:
   a) $6x + 18$
   b) $4ab + 12a$
   c) $2c^2 + 14cd$

9. 'Wordy' algebra questions:

   Sam thought of a number which he calls x.
   a) Rosie has a number which is 3 smaller than Sam's. Write down an expression for Rosie's number
   b) John has a number which is 4 times as big as Sam's. Write down an expression for John's number
   c) Together, Sam, Rosie and John have a total of 17. Write down an equation and solve it to find out what Sam's number is.

Conversions

10. 1 inch = 2.54 cm,
    a) A pizza has a diameter of 9 inches. How many centimetres is this?
    b) A necklace is 50 centimetres. What length is the necklace in inches?
    c) A rectangular picture is 129 square centimetres. It is 4 inches tall. How wide is it?

Averages

Number of pets in a household.

3	4	5	2	2	5	4	3	5
2	5	3	4	5	2	2	6	2

11. The number of pets children had in a class were recorded above.
    a) Copy and complete the frequency table below

Number of pets	1	2	3	4	5	6
Number of children						

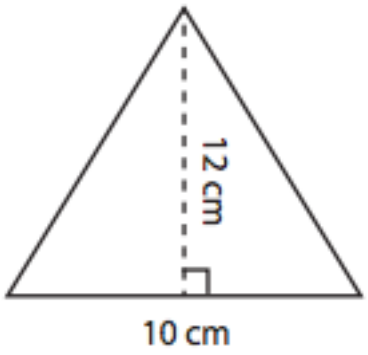
    b) What is the modal number of pets?
    c) Find the median number of pets
    d) Calculate the total number of pets owned by all the children
    e) Calculate the mean number of pets
    f) Draw a pie chart to represent the number of pets each child owns.

12. The mean mass of 11 dogs is 8.9 kg.
    a) What is the total mass of the 11 dogs?

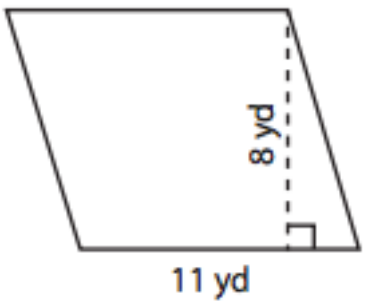
    Two dogs leave the group and the mean mass falls to 8kg.
    b) What is the total mass of the remaining 9 dogs?
    c) What is the mean of the two dogs who left the group?

Circle - area and circumference (and parts of circles)

13. Find the area of the following shapes:

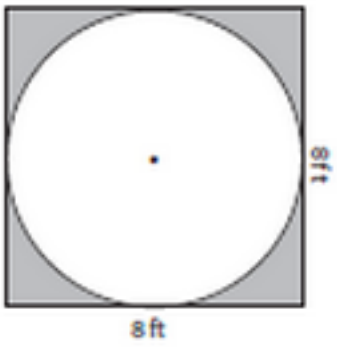


Area = _____

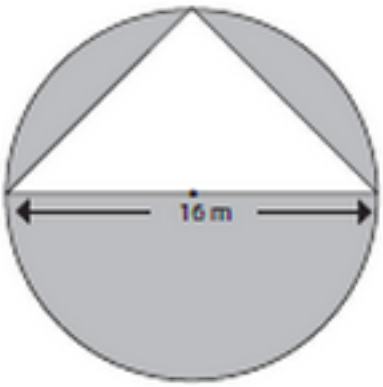


Area = _____

14. Find the shaded area of the following shapes.

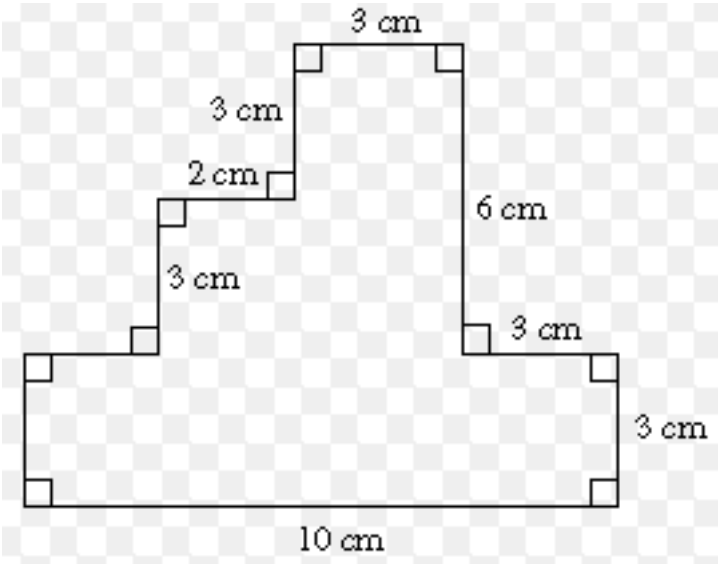


Area = _____



Area = _____

15. Find the perimeter of the following shape.

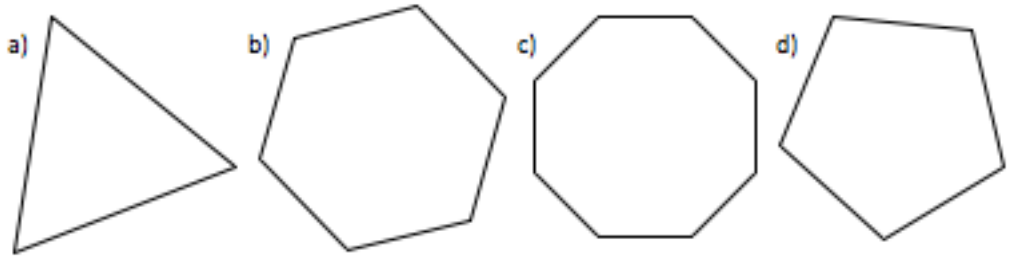


Volume

16. A cuboid tub measures 2.4m by 3.6m and is 80cm deep. How many litres of water can it hold?

Angles

17. These shapes are all regular polygons. Find the size of the interior angle in each.

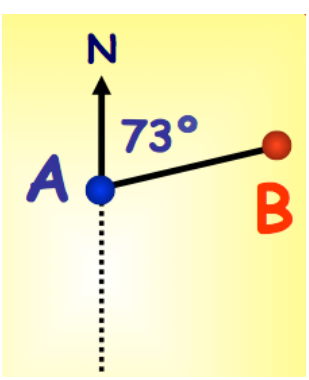


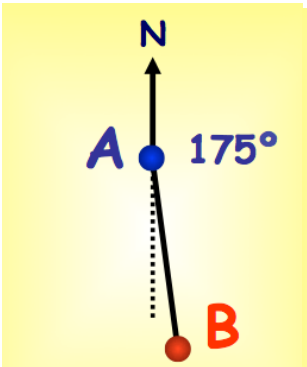
18. Which regular polygons have……

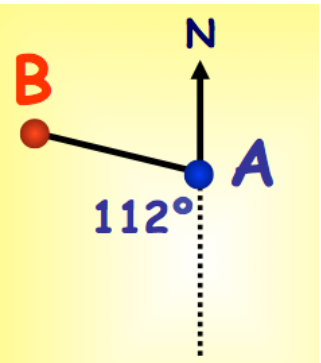
a. An exterior angle of 45^0
b. An interior angle of 150^0
c. An interior angle of 156^0
d. A total sum of interior angles adding to 1800^0

Bearings

19. For each of the following find the bearings of B from A.







Plotting lines

20.

(a) For the function $y = 2x - 3$ complete this table of values for x and y.

x	−2	−1	0	1	2
$2x$	−4	−2	0	2	4
y					

(b) Draw the graph of $y = 2x - 3$

(c) From your graph find:

(i) the value of y when $x = 1.5$

(ii) the value of x when $y = -2$