



The Thomas Hardye School
Summer Preparation Task
Maths and Further Maths A Level

Purpose of task:

To recap the GCSE skills necessary for A Level Maths; for some students this may be new work and they should seek help as soon as term starts.

Task:

Complete all the questions on the sheet. Hand in the work in your first lesson of the week commencing September 10th.

Recommended resources:

Websites:

mathsorchar.d.weebly.com

Examsolutions

Mymaths (login: hardye, password: square)

Textbooks: any higher GCSE Maths book

Thomas Hardye School Maths Summer Task

- Due in at the end of your first maths lesson during the week commencing Monday September 10th.
- Do without a calculator.
- Do all workings on paper, put the answers in the boxes on the sheet, and staple it all together, do not just hand in the answers.
- Please put your name on it.
- Remember this work is the first impression that you are giving your new maths teacher.

1) Factorise and hence solve the following:

a) $x^2 + 8x + 7 = 0$

Answer:

b) $3x^2 + 17x = 6$

Answer:

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c) $x^2 - 16 = 0$

Answer:

2) Solve:

a) $15x - 4 = x + 80$

Answer:

b) $\frac{2x}{3} + 1 = 3$

Answer:

c) $\frac{9(2x + 20)}{5} = 18$

Answer:

d) $\frac{4x - 2}{5} = \frac{5x + 5}{7}$

Answer:

3) Complete the square for : $x^2 + 4x - 2$

Answer:

4) Simplify the following: $\sqrt{40}$

Answer:

5) Expand, and simplify: $(5 + \sqrt{3})(5 - \sqrt{3})$

Answer:

6) Rationalise: $\frac{6}{5\sqrt{3}}$

Answer:

7) Given the 2 coordinates P(2, 1) and Q(7, -11) find the following

Answer:

a) the length of the line PQ

Answer:

b) the gradient of the line PQ

Answer:

c) the midpoint of the line PQ

8) Find the gradient and the y intercept for the following equations:

a) $y = 3x - 7$

Answer:

b) $3x + 2y - 5 = 0$

Answer:

9) Evaluate:

a) $27^{2/3}$

Answer:

b) 5^{-2}

Answer:

c) $16^{-3/4}$

Answer:

10) Simplify the following:

a) $12g^3 \times 2g^5$

Answer:

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b) $\frac{(2\sqrt{x})^4}{8x}$

Answer:

11. Solve the following pairs of simultaneous equations.

$$2x + 5y = 24$$

$$4x + 3y = 20$$

Answer:

12. Make the variable in the square bracket the subject of each of the following:

a) $v = u + at,$ [a]

Answer:

b) $Ax + B = Cx + D$ [x]

Answer:

13. Use the quadratic formula to find the exact solution to: $x^2 + 4x + 2 = 0$,

Answer:

14. Solve the simultaneous equations:

$$x^2 + y^2 = 20$$

$$y = x - 2$$

Answer:

15. Solve: $11a = 5 - 8d$

$$a + 6d = 11$$

Answer:

Additional information: Don't forget to staple your answers to your workings.

Recommended reading & activities list: Have a look at the new A level information available on the website: mathsorcharad.weebly.com before starting year 12.

Required Stationery and Equipment for Mathematics and Further Mathematics A Level

Pens, HB pencils and a ruler.

A4 Lever Arch Ring binder folder with file dividers

Either A4 Square paper or exercise books (available from THS)

Essential Resources

Scientific calculator, £18 from maths office. This model is necessary for the A Level course.

Revision guides are available from THS for £9

Things to Consider Throughout the Year

Maths office provides the majority of resources at cost price.

Our website www.mathsorcharad.weebly.com has old exam papers and solutions.

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