



The Thomas Hardye School

Summer Preparation Task

Maths and Further Maths A Level

Purpose of task:

To recap the GCSE skills necessary for AS 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. Mark these when the answers are available on mathsorchar.d.weebly.com and hand in the marked work in your first Maths lesson of the week beginning September 12th.

Recommended resources:

Websites:

mathsorchar.d.weebly.com

Examsolutions

Mymaths (login: hardye, password: boxplot)

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 11th.
- Do without a calculator.
- Do all workings on paper, put the answers in the boxes on the sheet, and staple it all together.
- Don't hand in just your 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

a) the length of the line PQ

Answer:

b) the gradient of the line PQ

Answer:

c) the midpoint of the line PQ

Answer:

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:

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 work altogether with your workings.

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

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