



The Thomas Hardy School

Summer Preparation Task

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 14th.

Recommended resources:

Websites:

drfrostmaths.com

examsolutions.net

corbettmaths.com

Textbooks: any higher GCSE Maths book

Thomas Hardy School Maths Summer Task

- Due in at the end of your first maths lesson during the week commencing Monday September 15th.
- **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 solve the following:

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

Answer:

b) $x^2 - 16 = 0$

Answer:

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

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
- b) the gradient of the line PQ
- c) the midpoint of the line PQ

Answers:

- a)
- b)
- c)

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

- a) $y = 3x - 7$
- b) $3x + 2y - 5 = 0$

Answer:

- a)
- b)

9) Evaluate:

- a) $27^{2/3}$
- b) 5^{-2}
- c) $16^{-3/4}$

Answers:

- a)
- b)
- c)

10) Simplify the following:

- a) $12g^3 \times 2g^5$
- b) $\frac{(2\sqrt{x})^4}{8x}$

Answer:

- a)
- b)

11. Solve: $2x + 5y = 24$
 $4x + 3y = 20$

Answer:

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

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

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

Answers:

a)

b)

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:

16. Simplify

a) $\frac{x^2 + 5x + 6}{x^2 + 6x + 9}$

b) $\frac{x^2 + 3x}{x^2 - 9}$

Answer:

a)

b)

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

Recommended reading & activities list:

<https://www.amazon.co.uk/Head-Start-Level-Maths-2017-2018/dp/1782947922/>

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, £20.00 from maths office. This model is necessary for the A Level course.
Things to Consider Throughout the Year
Maths office provides the majority of resources at cost price.

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