

AS Level Mathematics

Bridging Task

This task is designed to prepare you for the transition from GCSE to A-Level.

The pack contains key areas of GCSE that help to make sure you have a confident start to the AS course.

The task will need to be completed and handed in to your teacher within the first week in September. It will need to be presented neatly with **fully worked solutions** with your name on**.**

Students that fail to hand this in or hand in work which is below the acceptable standard will be required to attend additional support lessons, to help them with the course.

Preparatory work is an essential ingredient for success, you are encouraged to research the areas you are unsure about. It is not a test.

Hand in before: 8th September 2023

GCSE to A Level Mathematics : Bridging Task

1. Simplify **5*a* – 2*b* + 3*c* – 2*a* + 5*b***

2. Multiply out (expand) the brackets and simplify where possible:

 **4(3*a* – 2*b*) – 3(*a* + 2*b*)**

3. Multiply out (expand) the brackets and simplify these expressions:

 (i) **(*x* + 1)(*x* – 3)**  (ii) **(*x* – 3)(*x* – 4)**

4. Factorise the following expressions:

 (i) **10*ab* + 5*ac***  (ii) **2*x*2 + 4*xy –* 8*xz***

5. Simplify the following as much as possible:

 (i) (ii)

6. Write as a single fraction:

(i) (ii)

7. Solve the following equations.

 (i) **3 – 2*a* = 3*a* – 1**  (ii) **3(*p* – 3) = 2(2*p* + 1)**

8. Make *x* the subject of each of these formulae:

(i) (ii) ***y* =**

9. Factorise these quadratic expressions.

(i) **4*x*2 – 8*x* + 3** (ii) **4*x*2 – 25**

10. Simplify these expressions where possible.

 (i) (ii)

11. Solve these quadratic equations by factorising:

(i) ***x*2+ 4*x* + 3 = 0**  (ii) **2*x*2+ 5*x* + 3 = 0**

12. Solve these quadratic equations, giving your answer in exact form:

(i) ***x*2+ 2*x* – 2 = 0** (ii) **2*x*2 + *x* – 4 = 0**

13. There are 3 types of chocolate biscuit in a tin. There are 6 Plain, 10 Milk and 6 White. If I take 2 biscuits calculate the probability they are different types.

14. Solve the following simultaneous equations.

(i) **2*x* + 5*y* = 11** (ii) ***x* + 2*y* = 6**  **2*x* – *y* = 5 4*x* + 3*y* = 4**

15. Solve the following simultaneous equations.

(i) **7*x*2+ *y*2 = 64** (ii) **3*x*2– 2*y*2 = - 5**

 ***x* + *y* = 4 *y* – *x* = 1**

16. For the coordinates P(2, 4) and Q(10, 0). Calculate:

i) The midpoint of PQ

ii) The length of PQ

iii) The gradient of PQ

iv) The equation of the perpendicular bisector of PQ

17. Sketch, do not plot, the following graphs. Showing all intersections and turning points.

1. (ii)