GCSE Maths - Recap and Review

Deadline: Friday 19th August 2022

1. Expand and Simplify
   a $3(y^2 - 8) - 4(y^2 - 5)$ **b** $4p(2p - 1) - 3p(5p - 2)$

2. Expand and Simplify $(3y - 2)(2y + 5)$

3. Simplify
   a $\sqrt{80}$ **b** $\sqrt{75}$ **c** $\sqrt{50} - \sqrt{8}$

4. Rationalise the denominator, and simplify if possible
   a $\frac{3}{\sqrt{2}}$ **b** $\frac{36}{\sqrt{3}}$ **c** $\frac{6}{5-\sqrt{2}}$

5. Evaluate **a** $64^{\frac{2}{3}}$ **b** $27^{-\frac{1}{3}}$

6. Factorise fully
   a $20fg^2 - 30f^3g^2$ **b** $15mn + 21m^2 - 33mn^3$

7. Factorise fully **a** $x^2 + 10x + 16$ **b** $x^2 - 3x - 18$
   c $2x^2 + 5x + 3$ **d** $3x^2 - 4x - 4$

8. Simplify fully $\frac{2x^2+14x}{2x^2+4x-70}$

9. Make g the subject of $f = \frac{2g+3}{4-g}$

10. Write the following in the form $(x + p)^2 + q$, where p and q are integers.
    a $x^2 + 6x - 12$ **b** $y^2 - 10y + 8$ **c** $2m^2 + 16m + 10$

11. Solve the following using factorising $2x^2 + 5x + 3 = 0$

12. Sketch each of these graphs on the same -8 → +8 axes, you only need to state where the graph intersects axes.
    a $y = (x + 3)(x - 1)$ **b** $y = (x - 2)(x - 5)$
13. Solve these simultaneous equations.
    a 2x + 3y = 11 **b** 3x + y = 9
    3x + 2y = 4 2x – y = 1

14. Solve these simultaneous equations
    a $y = x - 5$ **b** $y = 2 + x$
    $y = x^2 - 5x - 12$ $x^2 + xy = 3$

15. Find the gradient and y-intercept of the following equations.
    a y = 4x – 5 **b** y = 0.2x + 13

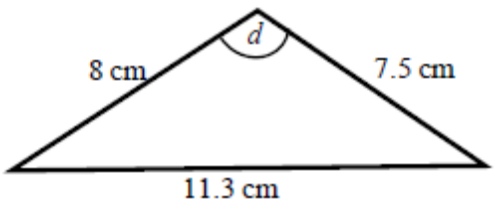
16. Write down the equation of the line that is parallel to y = 3x – 1 and passes through the point (2, 12)

17. Write down the equation of the line that is perpendicular to y = -2x + 4, passing through the point (5, 6)

18. B is directly proportional to the square root of C. C = 25 when B = 10.
    a Find B when C = 64 **b** Find C when B = 20

19. G is inversely proportional to H. When G = 2, H = 1. Find the value of H when G = 8.

20. Find the missing angle, accurate to 1 decimal place.



When completed, please send a photo of your work and solutions to Mr Loney (email mloney@birchwoodhigh.org.uk or on Teams).