EQUATION OF A LINE – SUBSTITUTION

Task 1 – For each of the following, write your answer in the form $y = mx + c$.

1) **Work out the equation of the straight line with a gradient of 2 that passes through the point $(0, 8)$.**

2) **Work out the equation of the straight line with a gradient of 1 that passes through the point $(0, -9)$.**

3) **Work out the equation of the straight line with a gradient of 4 that passes through the point $(8, 10)$.**

4) **Work out the equation of the straight line with a gradient of 2 that passes through the point $(1, 7)$.**

5) **Work out the equation of the straight line with a gradient of $\frac{1}{2}$ that passes through the point $(-5, 6)$.**

6) **Work out the equation of the straight line with a gradient of -4 that passes through the point $(-6, -12)$.**

7) **Work out the equation of the straight line with a gradient of $\frac{1}{3}$ that passes through the point $(9, 0)$.**

8) **Work out the equation of the straight line with a gradient of $\frac{3}{2}$ that passes through the point $(14, -6)$.**

9) **Work out the equation of the straight line with a gradient of -1 that passes through the point $(-10, -4)$.**

10) **Work out the equation of the straight line with a gradient of $-\frac{2}{3}$ that passes through the point $(3, -5)$.**

Task 2 – For each of the following write your answer in the form $y = mx + c$.

11) **Work out the equation of the straight line that passes through the points $(0, 1)$ and $(7, 8)$.**

12) **Work out the equation of the straight line that passes through the points $(10, 20)$ and $(25, 30)$.**

13) **Work out the equation of the straight line that passes through the points $(-5, 4)$ and $(-9, 5)$.**

14) **Work out the equation of the straight line that passes through the points $(2, 3)$ and $(4, 6)$.**

15) **Work out the equation of the straight line that passes through the points $(6, -2)$ and $(-8, -12)$.**

16) **Work out the equation of the straight line that passes through the points $(5, 2)$ and $(9, -2)$.**

17) **Work out the equation of the straight line that passes through the points $(14, 12)$ and $(-6, 2)$.**

18) **Work out the equation of the straight line that passes through the points $(5, -5)$ and $(9, 7)$.**

Task 3

19) **Does the straight line with equation $y = 2x + 8$, pass through the point $(4, 16)$?**

20) **Does the straight line with equation $y = -\frac{1}{3}x + 12$, pass through the point $(15, 6)$?**

21) **Does the straight line with equation $y = -x + 10$ pass through the point $(10, 0)$?**

22) **Does the straight line with equation $y = 12 - 3x$ pass through the point $(5, -6)$?**

Challenge

23) Write down the equation of the straight line that passes through the points $(9, 8)$ and $(-1, 14)$. Give your answer in the form $ax + by + c = 0$, where a, b and c are integers.

24) A straight line passes through the points $(4, 2)$ and $(8, 7)$. Work out the coordinates of the x-intercept of the line.