Further Coordinate Geometry

i. **Find the equations of the straight lines with the following properties:**

- Gradient $= 2$, Point $= (5, 6)$
- Gradient $= -1$, Point $= (3, 0)$
- Gradient $= -5$, Point $= (4, -2)$
- Gradient $= 1$, Point $= (0, 0)$
- Gradient $= 5$, Point $= (2, 3)$
- Gradient $= 1/2$, Point $= (1, 2)$
- Gradient $= 10$, Point $= (-1, -1)$
- Gradient $= -1/5$, Point $= (5, 15)$

ii. **Find the equations of the straight lines which passes through the points:**

- $(-1, 0)$ and $(-2, 1)$
- $(2, 3)$ and $(4, 6)$
- $(10, 5)$ and $(6, 8)$
- $(2, 8)$ and $(-5, -4)$
- $(4, 3)$ and $(16, 12)$
- $(5, 6)$ and $(-2, 9)$

iii. **The line l has equation $5y + 6x + 9 = 0$.**

- **Verify that the point $A = (6, -9)$ lies on the line l.**
- **Find the gradient of the line l.**
- **Find the equation of the normal to the line l at the point A.**

iv. **The curve C is given by the equation $y = x^2(x - 3) + 4$.**

- **The points $A = (2, a)$ and $B = (1, b)$ lie on the curve C. Find the values of a and b.**
- **Hence, find the distance AB.**

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