## Coordinate Geometry in the x-y plane – 2021/20 GCE AS Mathematics A

**1.** Oct/2021/Paper_H230/02/No.3

Sam invested in a shares scheme. The value, £$V$, of Sam's shares was reported $t$ months after investment.

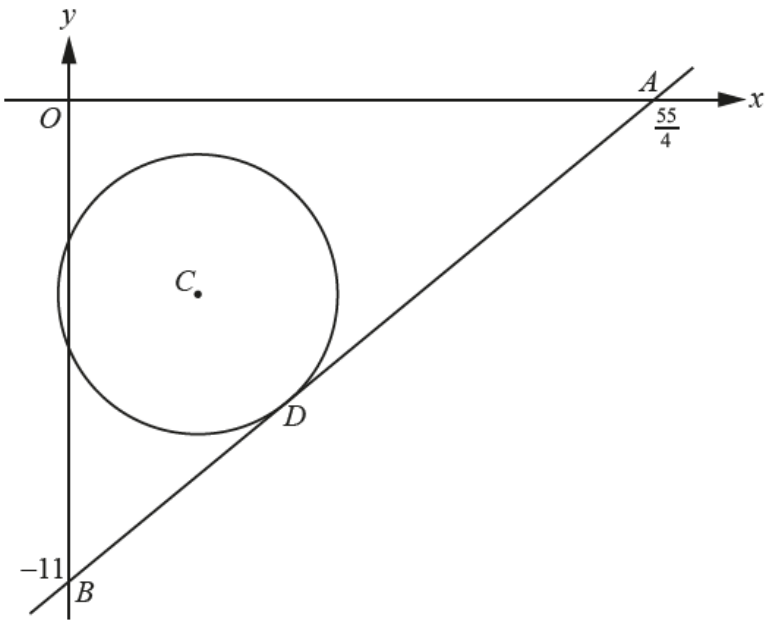
- Exactly 6 months after investment, the value of Sam's shares was £2375.
- Exactly 1 year after investment, the value of Sam's shares was £2825.

**(a)** Using a straight-line model, determine an equation for $V$ in terms of $t$. **[3]**

Sam's original investment in the scheme was £1900.

**(b)** Explain whether or not this fact supports the use of the straight-line model in part **(a)**. **[2]**

**2.** Oct/2021/Paper_H230/02/No.7




The diagram shows the circle with equation $x^2 + y^2 - 6x + 9y + 19 = 0$ and centre $C$.

**(a)** Find the following.

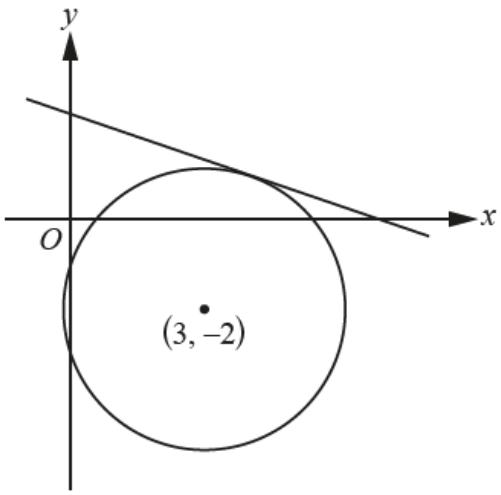
- The coordinates of $C$.
- The exact radius of the circle. **[3]**

The tangent to the circle at $D$ meets the $x$-axis at the point $A$ $(\frac{55}{4}, 0)$ and the $y$-axis at the point $B$ $(0, -11)$.

**(b)** Determine the area of triangle $OBD$. **[6]**

**3.** Oct/2020/Paper_H230/02/No.6

**In this question you must show detailed reasoning.**




The diagram shows the line $3y + x = 7$ which is a tangent to a circle with centre $(3, -2)$.

Find an equation for the circle. **[6]**

**4.** June/2019/Paper_H230/01/No.2

The circle $x^2 + y^2 - 4x + ky + 12 = 0$ has radius 1.

Find the two possible values of the constant $k$. **[4]**