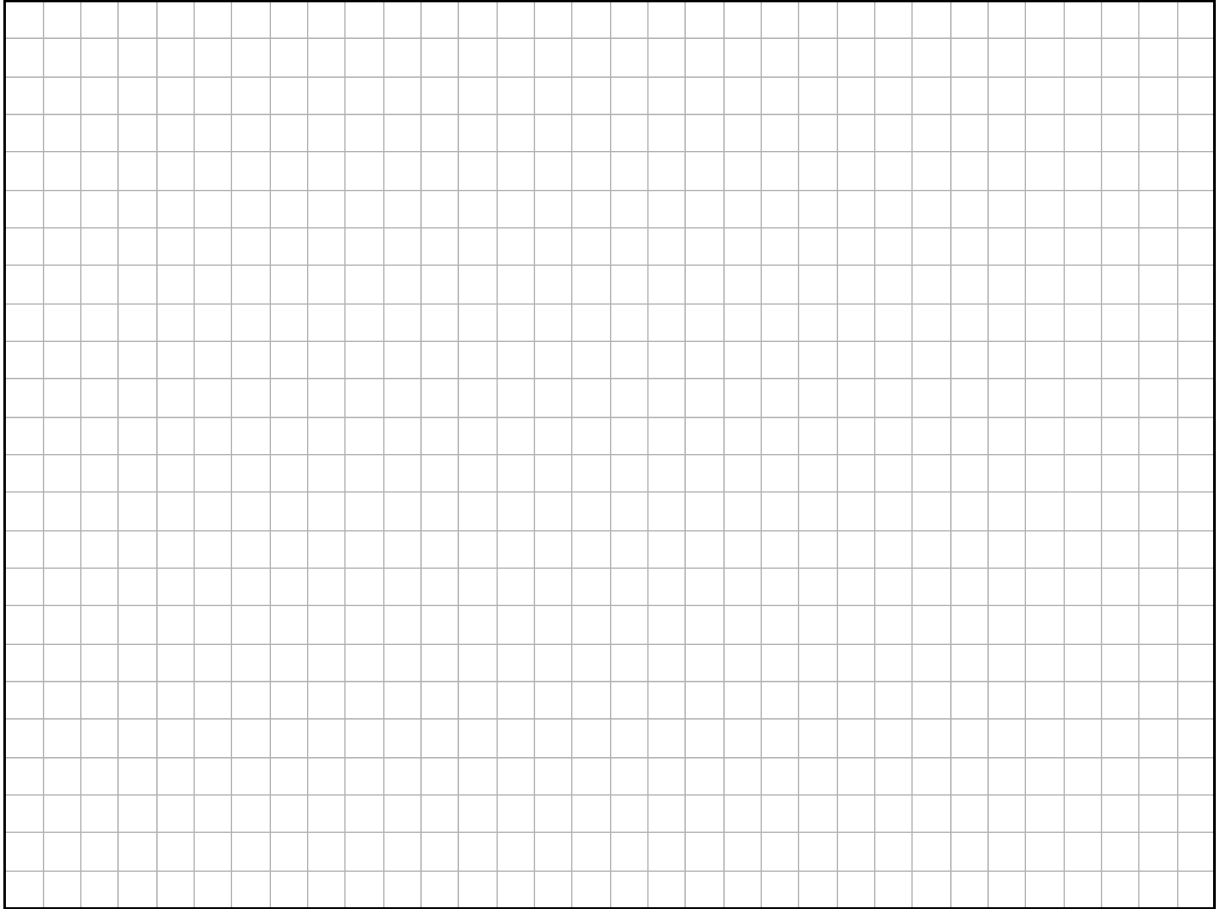


**Question 3**

**(25 marks)**

- (a) The point  $(-2, k)$  is on the circle  $(x - 2)^2 + (y - 3)^2 = 65$ .  
Find the two possible values of  $k$ , where  $k \in \mathbb{Z}$ .



- (b) The circle  $s$  is in the first quadrant. It touches both the  $x$ -axis and the  $y$ -axis. The line  $t: 3x - 4y + 6 = 0$  is a tangent to  $s$  as shown. Find the equation of  $s$ .

