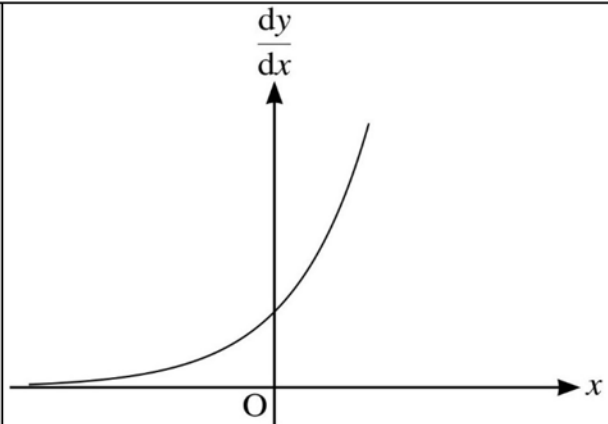
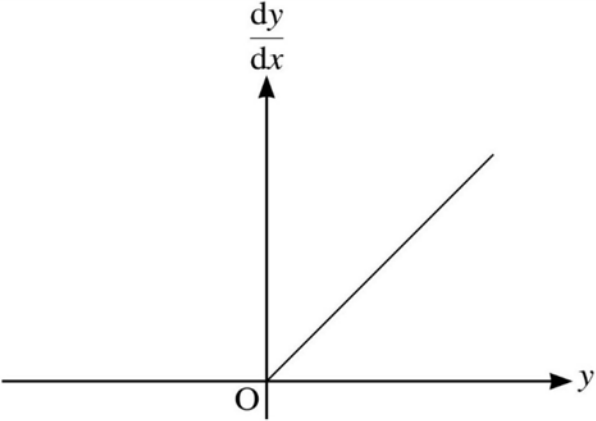


**5****(a)****(i)****B1****1.2**

5	(a)	(ii)		M1 A1	2.2a 2.2a	Straight line (+ve gradient) through origin (may stop short of origin) First quadrant only	
				[3]			
5	(b)	(i)	<p>Suitable reason e.g.</p> <ul style="list-style-type: none"> <li>Reasonable to assume population growth is proportional to population</li> <li>Populations are often modelled by exponential growth</li> </ul>	E1	3.3	Allow e.g. wolves give birth to more wolves than they started with Do not allow e.g. population is proportional to time	
				[1]			
5	(b)	(ii)	$A = 21$ $51 = 21e^k$ $k = \ln\left(\frac{51}{21}\right) = \ln\left(\frac{17}{7}\right) \approx 0.887$ or better	B1 M1 A1	3.4 3.4 1.1	Allow 0.89	
				[3]			
5	(b)	(iii)	<p>Suitable reason, e.g.</p> <ul style="list-style-type: none"> <li>Population cannot keep growing</li> <li>The wolves will run out of food if the population gets too big</li> </ul>	E1	3.5b	Allow e.g. lack of resources or deforestation	
				[1]			