1. $R = \dfrac{1}{10}$ and the interval is $\left[\dfrac{19}{10}, \dfrac{21}{10}\right]$

2. $R = \dfrac{1}{3}$ and the interval is $\left(\dfrac{8}{3}, \dfrac{10}{3}\right]$

3. $\cos(\pi x) = \displaystyle\sum_{n=0}^{\infty} (-1)^{n+1} \frac{\pi^{2n} x^{2n}}{(2n)!}$

4. $e^{-3x} = \displaystyle\sum_{n=0}^{\infty} (-1)^{n} \frac{3^n x^n}{n!}$

5. The vertical tangents are at $t = n\pi$ for integer n and the horizontal tangents are at $\dfrac{n\pi}{2}$ for odd integer n

6. The vertical tangents are at $t = -1$ and $t = 1$ and the horizontal tangents are at $t = 0$.

7. $y = 2x + 1$

8. $y = 2x + 3$

9. $L = e^3 - e^{-3}$

10. $L = 12$

11. $\left(x - \dfrac{5}{2}\right)^2 + y^2 = \dfrac{25}{4}$

12. $y = x^2$

13. $r = 6\cos\theta$

14. $r^2 \cos(2\theta) = 1$

15. $L = a$ and as $a \to \infty$ we have $L \to \infty$