

195 Final

1. $\frac{3}{\sqrt{10}}$

2. -4

3. $\frac{1}{2}$

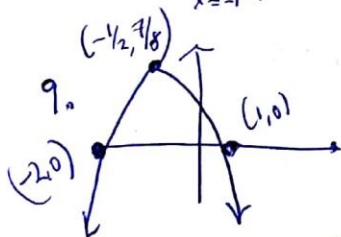
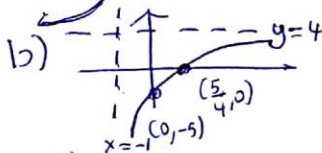
4. (a) $800e^{2\ln 5/4}$ bacteria
(b) $\frac{\ln 2}{\ln 5/4}$ hours

5. a) $[-1, 1]$
b) $\frac{1}{2}$ c) $2|x|$

6. $1-2a-h$

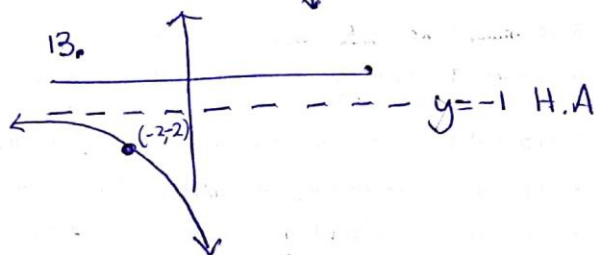
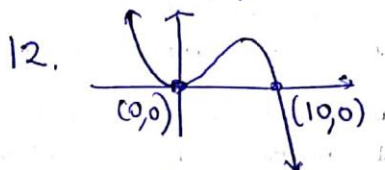
7. $(-\infty, 0] \cup [2, 9]$

8. a) $\frac{4x-5}{x+1} = 4 + \frac{-9}{x+1}$

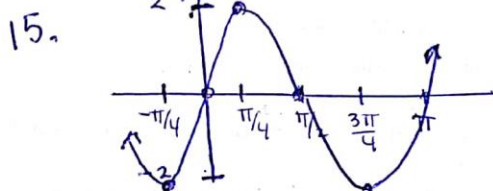


10. $\frac{1+\tan^2 x}{1-\tan^2 x} = \frac{\sec^2 x}{\frac{\cos^2 x}{\cos^2 x} - \frac{\sin^2 x}{\cos^2 x}} = \frac{1}{\cos^2 x - \sin^2 x}$

11. $f'(x) = \frac{4x}{1-x}$



14. 0



16. $(x+1)^2 + (y-5)^2 = 26$

17. $\frac{\sqrt{2+\sqrt{2}}}{2}$

18. $\frac{\pi}{6}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{11\pi}{6}$

19. $-\frac{13}{12}$

20. $-\frac{1}{\sqrt{3}}$

21. wind 60mph
airplane 300mph