1. (a) \( D(3, 8, -1) \)
   (b) area=\(\sqrt{165}\)
   (c) \( E = \left( \frac{32}{13}, \frac{18}{13}, \frac{50}{13} \right) \), the picture on the RIGHT is correct

2. (a) \( 3x - 5y - 5z = -19 \)
   (b) \( x = 3t, y = 5 - 5t, z = -5t \)
   (c) \( \left( \frac{18}{59} \frac{265}{59}, \frac{-30}{59} \right) \)

3. (a) \( v(t) = \frac{1}{2} \sin(2t)i + \frac{1}{2}(1 - \cos(2t))j + tk \)
   (b) \( x(t) = \frac{1}{4}(1 - \cos(2t)), y(t) = \frac{t}{2} - \frac{1}{4}\sin(2t), z(t) = \frac{1}{2}t^2 \)

4. (a) \( r'(t) = \langle -2e^{-2t}, \sec^2 t, 3t^2 + 1 \rangle \)
   (b) \( T = \left\langle -\frac{2}{\sqrt{6}} \frac{1}{\sqrt{6}} \frac{1}{\sqrt{6}} \right\rangle \)
   (c) \( x = 1 - 2t, y = t, z = t \)
   (d) No. The system of equations \( 1 - 2t = 1, t = 1, t = 1 \) has no solution.

5. (a) slope=\(-3\)
   (b) \( x = \frac{1}{3}e^{3\pi/2} \)

6. absolute max=10; absolute min = 7

7. \( K = \sqrt{\frac{8000}{\pi}} \)

8. (a) \( f(x) = \sum_{k=0}^{\infty} (-1)^k \frac{x^{8k+6}}{(2k+1)!} \)
   (b) \( T_3(x) = 0 \) for all \( x \)
   (c) \( |f(x) - T_3(x)| \geq 0 \) for all values of \( x \) and \( |f(0) - T_3(0)| = |0 - 0| = 0 \). So the smallest value of \( |f(x) - T_3(x)| \) on the interval from -1 to \( \pi/2016 \) is 0.

9. (a) \( F(x) = \sum_{k=0}^{\infty} \frac{x^{2k+1}}{(2k+1)!} \cdot k! \)
   (b) \( T_3(x) = \frac{1}{2}x^2 \)
   (c) One possible answer: \( |H(x) - T_2(x)| \leq \frac{e^{16} \cdot 4^3}{6} \)