Problem 1. (15 points) Mark True or False. No justification is needed.

FFFTF FFTFF FFFFT

Problem 2. (Differential calculus) (10 points)

(1) \(-0.002\).
(2) \(-1/2\).
(3) Absolute max \(f(0) = 5\). Absolute min \(f(-3) = -76\).

Problem 3. (Indefinite integrals) (3 \times 3 = 9 points). Compute the following indefinite integrals. Use \(C\) to stand for the constant of integration.

(1) \(\frac{7}{15} x^{15/7} + C\).
(2) \(\frac{1}{5} \tan^5 x + C\).
(3) \(\frac{1}{6} \ln |x^6 - 3| + C\).

Problem 4. (Definite integrals) (3 \times 4 = 12 points).

(1) \(-\frac{1}{3} (e^{-3} - 1)\).
(2) \(\frac{45}{28}\).
(3) 0.
(4) \(3 + \frac{9}{4} \pi\).

Problem 5. (Curve sketching) (5 points).

(1) Increasing on \((5, +\infty)\) and \((-\infty, -1)\). Decreasing on \((-1, 5)\).
(2) Concave up on \((2, +\infty)\). Concave down on \((-\infty, 2)\).

Problem 6. (Net change) (5 points).

(1) \(v(t) = \frac{1}{2} t^2 + 5t + 4\).
(2) \(\frac{832}{3} = 277\frac{1}{3}\).

Problem 7. (Area) (4 points).