(1) Legyen $a_n = \frac{3n+3}{2n+3}$. Mennyi $a_{n+1} - a_n$?

   A) 0, B) $\frac{2}{4n^2+16n+15}$, C) $\frac{3}{4n^2+16n+15}$, D) $\frac{1}{4n^2+16n+15}$, E) $-\frac{1}{4n^2+16n+15}$

   C

   1

(2) Mennyi $\lim_{n\to\infty} \left(1 - \frac{3}{2n}\right)^{4n-2}$?

   A) e^4, B) $\frac{1}{e^6}$, C) e^3, D) $\frac{1}{e^{12}}$, E) e^6

   B

   1

(3) Legyen $f(x) = 2x^2 + 3x + 2$, $d = \frac{1}{3}$. Mennyi $\frac{f(3+d)-f(3)}{d}$?

   A) $\frac{53}{3}$, B) $\frac{50}{3}$, C) $\frac{52}{3}$, D) $\frac{47}{3}$, E) $\frac{49}{3}$

   D

   1

(4) Legyen $f(x) = 3x^3 + 2x^2 + 2$ $x_0 = 3$. Ird fel az $f(x_0 + \Delta x) \approx ax + b$ linearis kozelitest az x_0 pont korul! Mennyi $a + 2b$?

   A) 289, B) 291, C) 288, D) 290, E) 287

   E

   1

(5) Legyen $f(x) = \frac{3x+4}{2x+4}$. Mennyi f' ?

   A) $\frac{2}{(x+2)^2}$, B) $\frac{1}{2(x+2)^2}$, C) 0, D) $\frac{3}{2(x+2)^2}$, E) $\frac{1}{(x+2)^2}$

   E

   1

(6) Legyen $f(x) = 2x^3 + 2x^2 + 4$ Mennyi $f''(2)$?

   A) 24, B) 28, C) 27, D) 26, E) 25

   B

   1

(7) Legyen $f(x) = \frac{5}{x^3}$ $x_0 = 1$. Ird fel az $f(x_0 + \Delta x) = f(x_0) + f'(x_0)\Delta x + hiba(\Delta x)$ linearis kozelitest az x_0 pont korul! Melyik az alabbiak kozul a legjobb felso becsles a hiba abszolut ertekere, ha $\Delta x \in (0, 0.1)$? ?

   A) $120\Delta x^2$, B) $60\Delta x$, C) $30\Delta x^2$, D) $15\Delta x^2$, E) $30\Delta x$

   C

   1