**Calculus ex03** **17 Apr. 2019**

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○1 ○1 ○1 ○1 ○1 ○1 ○1 ○1
○2 ○2 ○2 ○2 ○2 ○2 ○2 ○2
○3 ○3 ○3 ○3 ○3 ○3 ○3 ○3
○4 ○4 ○4 ○4 ○4 ○4 ○4 ○4
○5 ○5 ○5 ○5 ○5 ○5 ○5 ○5
○6 ○6 ○6 ○6 ○6 ○6 ○6 ○6
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⟵ Please encode your student number, and write your first and last names below.

First name and last name

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問 [diff01] Find the derivative $f'(x)$ of $f(x) = 3x^4 + 3x^3 + 6x^2 + 4x + 2$.

● $12x^3 + 9x^2 + 12x + 4$ ○ $3x^4 + 3x^3 + 6x^2 + 4x + 2$ ○ $12x^3 + 9x^2 + 12x + 6$
○ $3x^4 + 6x^3 + 6x^2 + 4x$ ○ $12x^3 + 9x^2 + 14x + 4$

問 [diff02] Find the derivative $f'(x)$ of $f(x) = 5 - \frac{3}{x} + \frac{3}{x^2}$.

● $\frac{3}{x^2} - \frac{6}{x^3}$ ○ $-\frac{3}{x^2} + \frac{6}{x^3}$ ○ $-\frac{3}{x^2} + \frac{3}{x^3}$ ○ $\frac{3}{x^2} - \frac{3}{x^3}$ ○ $5 - \frac{3}{x}$

問 [diff03] Find the derivative $f'(x)$ of $f(x) = x^{\frac{7}{2}}$.

● $\frac{7}{2}x^{\frac{5}{2}}$ ○ $\frac{5}{2}x^{\frac{5}{2}}$ ○ $\frac{9}{2}x^{\frac{5}{2}}$ ○ $\frac{5}{2}x^{\frac{5}{2}}$ ○ $\frac{7}{2}x^{\frac{7}{2}}$

問 [diff04] Find the derivative $f'(x)$ of $f(x) = x^{\frac{7}{3}} - x^{-\frac{13}{4}}$.

● $\frac{7}{3}x^{\frac{4}{3}} + \frac{13}{4}x^{-\frac{17}{4}}$ ○ $\frac{7}{3}x^{\frac{4}{3}} - \frac{13}{4}x^{-\frac{17}{4}}$ ○ $\frac{4}{3}x^{\frac{7}{3}} + \frac{13}{4}x^{-\frac{9}{4}}$ ○ $\frac{4}{3}x^{\frac{4}{3}} - \frac{13}{4}x^{\frac{9}{4}}$
○ $\frac{7}{3}x^{\frac{7}{3}} + \frac{13}{4}x^{-\frac{9}{4}}$ ○ $\frac{7}{3}x^{-\frac{4}{3}} + \frac{13}{4}x^{-\frac{9}{4}}$

問 [diff05] Find the derivative $f'(x)$ of $f(x) = (x^2 + 1)(2x + 1)$.

● $6x^2 + 2x + 2$ ○ $6x^2 + 2x$ ○ $4x$ ○ $6x^2 + 2x + 3$

問 [diff06] Find the derivative $f'(x)$ of $f(x) = \frac{2}{2x^2+5x+7}$.

● $-\frac{8x+10}{(2x^2+5x+7)^2}$ ○ $\frac{8x+10}{(2x^2+5x+7)^2}$ ○ $-\frac{8x+10}{2x^2+5x+7}$ ○ $\frac{8x+10}{2x^2+5x+7}$

問 [diff07] Find the derivative $f'(x)$ of $f(x) = \frac{4x+7}{5x+8}$.

● $\frac{-3}{(5x+8)^2}$ ○ $\frac{4}{5x+8}$ ○ $\frac{4}{(5x+8)^2}$ ○ $\frac{5}{5x+8}$ ○ $\frac{-3}{5x+8}$

問 [diff08] Find the derivative $f'(x)$ of $f(x) = (6x + 5)^7$.

● $42(6x + 5)^6$ ○ $7(6x + 5)^6$ ○ $42(6x + 5)^7$ ○ $7(6x + 5)^7$