(1) True or False: Given two differentiable functions, f and g, the derivative of their product is equal to the product of their derivatives, i.e. $\big(fg\big)' = f'g'$.

- ○ True
- ○ False

(2) Consider the function $y = 3x^5e^x$. If we write $y = fg$ what is an appropriate choice for f and g?

- ○ $f = 3$, $g = e^x$
- ○ $f = 3x^5$, $g = e^x$
- ○ $f = 3x^5$, $g = x^5e^x$
- ○ None of the above

(3) Find the derivative of $y = 3x^5e^x$.

- ○ $y' = 15x^4e^x$
- ○ $y' = 3x^5 + 15x^4e^x$
- ○ $y' = 3x^5e^x + 15x^4$
- ○ None of the above

(4) Which tool(s) of differentiation can be used to find y' where $y = (3x + 6)(x - 5)$?

- ○ Power rule
- ○ Product rule
- ○ Both the power rule and the produce rule
- ○ None of the above

(5) <u>True of False:</u> Given two differentiable functions, f and g, the derivative of their quotient is equal to the quotient of their derivatives, i.e. $\left(\frac{f}{g}\right) = \frac{f'}{g'}$.

- ○ True
- ○ False

(6) Consider the function $y = \frac{6\sqrt{x} - 5}{10x^2}$. If we write $y = \frac{f}{g}$ what is an appropriate choice for f and g?

- ○ $f = 6\sqrt{x}$, $g = 10x^2$
- ○ $f = 6\sqrt{x} - 5$, $g = 10x$
- ○ $f = \sqrt{x} - 5$, $g = 10x^2$
- ○ None of the above

(7) Find the derivative of $y = \frac{9x}{x^3 - 7x + 1}$.

- ○ $\frac{9}{3x^2 - 7}$
- ○ $\frac{-9(2x^3 - 1)}{(x^3 - 7x + 1)^2}$
- ○ $\frac{3(12x^3 - 42x + 3)}{(x^3 - 7x + 1)^2}$
- ○ None of the above.

(8) Which tool(s) of differentiation can be used to find y' where $y = \frac{6x^4 - 5x^8}{x^6}$?

- ○ Power rule
- ○ Product rule
- ○ Quotient rule
- ○ All of the above