

Classe: 1SSI	Date: 5/06/2013	<u>Type</u> <u>Interrogation sujet A</u>
<u>Devoir n°17</u>		
Thème: Dérivation		

Calculer les fonctions dérivées des fonctions suivantes:

$$1^{\circ}) f(x) = -3x^3 + 5x^2 - 7x - 2.$$

$$2^{\circ}) f(x) = \frac{x^4}{3} - \frac{5x^3}{2} + 2x^2 - 3x + 18.$$

$$3^{\circ}) f(x) = 7x + \frac{1}{x}.$$

$$4^{\circ}) f(x) = \frac{1}{x^2} - \frac{1}{5}x^2 + 6.$$

$$5^{\circ}) f(x) = \frac{2}{x+3}.$$

$$6^{\circ}) f(x) = \frac{x+1}{2x-2}.$$

$$7^{\circ}) f(x) = \frac{5}{2x} - \frac{4x}{3}.$$

$$8^{\circ}) f(x) = \frac{x^2 - 2x + 3}{3x + 2}.$$

Classe: 1SSI	Date: 5/06/2013	<u>Type</u> <u>Interrogation sujet B</u>
<u>Devoir n°17</u>		
Thème: Dérivation		

Calculer les fonctions dérivées des fonctions suivantes:

$$1^{\circ}) f(x) = -4x^3 + 3x^2 - 5x - 11.$$

$$2^{\circ}) f(x) = \frac{x^4}{5} - \frac{3x^3}{2} + 3x^2 - 5x + 7.$$

$$3^{\circ}) f(x) = 9x + \frac{1}{x}.$$

$$4^{\circ}) f(x) = \frac{1}{x^2} - \frac{1}{3}x^2 + 11.$$

$$5^{\circ}) f(x) = \frac{3}{x+5}.$$

$$6^{\circ}) f(x) = \frac{x-2}{3x+1}.$$

$$7^{\circ}) f(x) = \frac{3}{2x} - \frac{4x}{5}.$$

$$8^{\circ}) f(x) = \frac{x^2 - 3x + 7}{3x - 2}.$$

Correction du devoir: (sujet A)

$$1^{\circ}) f'(x) = -9x^2 + 10x - 7$$

0,5 pt

$$2^{\circ}) f'(x) = \frac{4}{3}x^3 - \frac{15}{2}x^2 + 4x - 3$$

1 pt

$$3^{\circ}) f'(x) = 7 - \frac{1}{x^2}$$

1 pt

$$4^{\circ}) f'(x) = -\frac{2}{x^3} - \frac{2}{5}x$$

1,5 pts

$$5^{\circ}) f'(x) = -\frac{2}{(x+3)^2}$$

1,5 pts

$$6^{\circ}) f'(x) = \frac{1(2x-2) - (x+1) \times 2}{(2x-2)^2} = \frac{2x-2-2x-2}{(2x-2)^2} = \frac{-4}{(2x-2)^2} = \frac{-1}{(x-1)^2}$$

1,5 pts

$$7^{\circ}) f'(x) = \frac{5}{2} \times \left(-\frac{1}{x^2}\right) - \frac{4}{3} = -\frac{5}{2x^2} - \frac{4}{3}$$

1,5 pts

$$8^{\circ}) f'(x) = \frac{(2x-2)(3x+2) - (x^2-2x+3) \times 3}{(3x+2)^2} = \frac{6x^2+4x-6x-4-(3x^2-6x+9)}{(3x+2)^2}$$

$$f'(x) = \frac{3x^2 + 4x - 13}{(3x+2)^2}$$

1,5 pts

Correction du devoir (sujet B)

$$1^o) f'(x) = -12x^2 + 6x - 5 \quad 0,5 \text{ pt}$$

$$2^o) f'(x) = \frac{4}{5}x^3 - \frac{9x^2}{2} + 6x - 5 \quad 1 \text{ pt}$$

$$3^o) f'(x) = 9 - \frac{1}{x^2} \quad 1 \text{ pt}$$

$$4^o) f(x) = x^{-2} - \frac{1}{3}x^2 + 11$$

$$f'(x) = -\frac{2}{x^3} - \frac{2}{3}x \quad 1,5 \text{ pts}$$

$$5^o) f(x) = 3 \times \left(\frac{1}{x+5} \right)$$

$$f'(x) = 3 \times \left(-\frac{1}{(x+5)^2} \right) = -\frac{3}{(x+5)^2} \quad 1,5 \text{ pts}$$

$$6^o) f'(x) = \frac{1(3x+1) - (x-2) \times 3}{(3x+1)^2} = \frac{3x+1-3x+6}{(3x+1)^2}$$

$$f'(x) = \frac{7}{(3x+1)^2} \quad 1,5 \text{ pts}$$

$$7^o) f'(x) = -\frac{3}{2x^2} - \frac{4}{5} \quad 1,5 \text{ pts}$$

$$8^o) f'(x) = \frac{(2x-3)(3x-2) - (x^2-3x+7) \times 3}{(3x-2)^2}$$

$$f'(x) = \frac{6x^2 - 4x - 9x + 6 - 3x^2 + 9x - 21}{(3x-2)^2}$$

$$f'(x) = \frac{3x^2 - 4x - 15}{(3x-2)^2} \quad 1,5 \text{ pts}$$