

EXERCICE 1**2 points**

$$A = 3x^2 - 4x^2 + 3x + 5x + 2 + 1 = -x^2 + 8x + 3$$

$$B = -7x^3 + 5x^3 - 4x^2 + 2x^2 + x + 3x - 1 - 4 = -2x^3 - 2x^2 + 4x - 5$$

$$C = x - x + 2x - 2y - 2y + y + 3z + z = 2x - 3y + 4z$$

$$D = 4x - 4y - 9y + 9x - x + y = 12x - 12y$$

EXERCICE 2**6 points**

$$A = 20x + 35 + 4x - 18 = 24x + 17$$

$$B = 15x^2 - 25x - 3x + 4x^2 = 19x^2 - 28x$$

$$C = 42x - 35x^2 + 54 - 45x = -35x^2 - 3x + 54$$

$$D = 15x^2 - 3x - 10x + 2 = 15x^2 - 13x + 2$$

$$E = 9 - (4x - 7x^2 - 12 + 21x) = 9 - 4x + 7x^2 + 12 - 21x = 7x^2 - 25x + 21$$

$$F = (36x^2 - 60x + 25) - 4(9x^2 - 30x + 25) = 36x^2 - 60x + 25 - 36x^2 + 120x - 100 = 60x - 75$$

EXERCICE 3**3 points**

$$\begin{array}{r} 1. \quad 87,59 \\ + 8531,40 \\ \hline 8618,99 \end{array}$$

$$\begin{array}{r} 2. \quad 78,521 \\ - 48,632 \\ \hline 29,889 \end{array}$$

$$\begin{array}{r} 3. \quad 38,9 \\ \times 6,7 \\ \hline 2723 \\ + 23340 \\ \hline 260,63 \end{array}$$

EXERCICE 4**6 points**

$$A = 4(7x - 9)$$

$$B = 7x(2 - 3x)$$

$$C = 9xy(2yz + 3z^2 - 8x)$$

$$D = (5 - 2x)(4x + 6) = 2(5 - 2x)(2x + 3)$$

$$E = (4 - 6x)[(3x - 4) - (2 + 5x)] = (4 - 6x)(3x - 4 - 2 - 5x) = (4 - 6x)(-2x - 6) = -2(4 - 6x)(x + 3)$$

EXERCICE 5**5 points**

$$1. \quad \text{a.} \quad \frac{46}{11} + \frac{9}{22} = \frac{92}{22} + \frac{9}{22} = \frac{101}{22}$$

$$\text{b.} \quad \frac{12}{15} \div \frac{48}{60} = \frac{12}{15} \times \frac{60}{48} = \frac{12 \times 15 \times 4}{15 \times 4 \times 12} = 1$$

$$2. \quad \text{a.} \quad \frac{36}{35} \times \frac{21}{27} \times \frac{14}{42} = \frac{9 \times 4 \times 21 \times 2 \times 7}{7 \times 5 \times 9 \times 3 \times 21 \times 2} = \frac{4}{5 \times 3} = \frac{4}{15}$$

$$\text{b.} \quad \frac{\frac{6}{4} + \frac{4}{14}}{\frac{4}{21} - \frac{14}{12}} = \frac{\frac{21}{14} + \frac{4}{14}}{\frac{14}{21} - \frac{14}{21}} = \frac{\frac{25}{14}}{-\frac{24}{21}} = \frac{25}{14} \times \left(-\frac{7}{8}\right) = -\frac{25 \times 7}{2 \times 7 \times 8} = -\frac{25}{16}$$

EXERCICE 6 - BONUS**2 points**

$$A = 5x^2 + 7xy + 2y^2 = 5x^2 + 5xy + 2xy + 2y^2 = 5x(x + y) + 2y(x + y)$$

$$A = (x + y)(5x + 2y)$$

$$\begin{aligned} B &= -2 + \frac{2}{3 + \frac{2}{3 - \frac{1}{1 - \frac{1}{2}}}} \\ &= -2 + \frac{2}{3 + \frac{2}{3 - \frac{1}{\frac{1}{2}}}} \\ &= -2 + \frac{2}{3 + \frac{2}{3 - 4}} \\ &= -2 + \frac{2}{3 + \frac{2}{-1}} \\ &= -2 + \frac{2}{3 - 2} \\ &= -2 + \frac{2}{1} \\ &= -2 + 2 \\ B &= 0 \end{aligned}$$