

Pour les exercices de 7 à 13, donner une primitive de la fonction f sur l'intervalle I .

EXERCICE 7**Linéarité de la primitive**

1) $f(x) = x^4 - 4x^3 + x^2 - 4x + 3, \quad I = \mathbb{R}$

2) $f(x) = \frac{x^2 - 2x + 1}{3}, \quad I = \mathbb{R}$

4) $f(x) = -\frac{1}{x^3} + \frac{4}{x^2} - 1, \quad I =]0; +\infty[$

3) $f(x) = 1 - \frac{1}{x^3}, \quad I =]0; +\infty[$

5) $f(x) = \frac{4}{x} + 2e^x, \quad I =]0; +\infty[$

EXERCICE 8**Forme $u'u^n$**

1) $f(x) = (x + 2)^3, \quad I = \mathbb{R}$

4) $f(x) = 2x(3x^2 - 1)^3, \quad I = \mathbb{R}$

2) $f(x) = 2x(1 + x^2)^5, \quad I = \mathbb{R}$

5) $f(x) = \sin x \cos x, \quad I = \mathbb{R}$

3) $f(x) = \frac{(x - 1)^5}{3}, \quad I = \mathbb{R}$

EXERCICE 9**Forme $\frac{u'}{u}$**

1) $f(x) = \frac{1}{x - 4}, \quad I =]4; +\infty[$

2) $f(x) = \frac{1}{x - 4}, \quad I =]-\infty; 4[$

3) $f(x) = \frac{2x - 1}{x^2 - x}, \quad I =]0; 1[$

EXERCICE 10**Forme $\frac{u'}{u^n}, \quad n \geq 2$**

1) $f(x) = \frac{2}{(x + 4)^3}, \quad I =]-4; +\infty[$

4) $f(x) = \frac{x - 1}{(x^2 - 2x - 3)^2}, \quad I =]-1; 3[$

2) $f(x) = \frac{1}{(3x - 1)^2}, \quad I =]-\infty; \frac{1}{3}[$

5) $f(x) = \frac{4x^2}{(x^3 + 8)^3}, \quad I =]-2; +\infty[$

3) $f(x) = \frac{2x - 1}{(x^2 - x + 3)^2}, \quad I = \mathbb{R}$