

# CURSO MENTOR

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**Professor:** Leonardo Santos

**Tema:** Fatoração I

**Data:** 19 de fevereiro de 2015

**Q1.** Fatore as expressões a seguir:

- |                                   |                           |
|-----------------------------------|---------------------------|
| 1) $3x + 6$                       | 7) $0,36 - 0,96x$         |
| 2) $42 - 14x$                     | 8) $0,3x + 0,6$           |
| 3) $\frac{8}{3}x + \frac{32}{3}$  | 9) $x^2 + 2x$             |
| 4) $4x - \frac{20}{21}$           | 10) $35x - 7x^2$          |
| 5) $\frac{2}{3}x + \frac{40}{33}$ | 11) $3x^3 + 2x^2 + x$     |
| 6) $0,2x + 0,4$                   | 12) $x^{2014} + x^{2013}$ |

**Q2.** Fatore as expressões a seguir:

- |  |                          |
|--|--------------------------|
| 1) $x^2 - 1$                           | 7) $0,36 - 0,16x^2$      |
| 2) $4x^2 - 25$                         | 8) $x^2 - 0,1$           |
| 3) $144 - 169x^2$                      | 9) $x^2 - \frac{1}{x^2}$ |
| 4) $\frac{4}{9} - 25x^2$               | 10) $x^4 - 1$            |
| 5) $-\frac{121}{25} + \frac{1}{16}x^2$ | 11) $x^6 - 1$            |
| 6) $\frac{64}{5} - \frac{121}{5}x^2$   | 12) $x^4 - x^2$          |

**Q3.** Fatore as expressões a seguir:

- $ax + bx + 2b + 2a$
- $ax - bx + cx - 4b + 4c + 4a$
- $6x^2 + 15x - 4xy - 10y$
- $x^4 + 9x^3 - 6x - 54$
- $x^3 + x^2 - 4x - 4$
- $xy + \frac{x}{y} + \frac{y}{x} + \frac{1}{xy}$

**Q4.** Fatore as expressões a seguir:

- |                                       |                          |
|---------------------------------------|--------------------------|
| 1) $x^3 - 1$                          | 7) $343 - 1000x^6$       |
| 2) $x^3 + 1$                          | 8) $x^3 + \frac{1}{x^3}$ |
| 3) $27 - 8x^3$                        | 9) $x^3 - \frac{1}{x^3}$ |
| 4) $64 - 125x^3$                      | 10) $x^3 + x^6$          |
| 5) $\frac{64}{125} + \frac{27}{8}x^3$ | 11) $8x^3 - 125x^6$      |
| 6) $2x^3 - 128$                       | 12) $x^4 + x^7$          |

**Q5.** Fatore as expressões a seguir:

- $x^2 + 2x + 1$
- $x^2 - 2x + 1$
- $x^2 + 4x + 4$
- $-3x^2 + 6x - 3$
- $4x^2 - 4x + 1$
- $x^2 - 0,2x + 0,01$

**Q6.** Fatore as expressões a seguir:

- $x^2 - 5x + 6$
- $x^2 + 8x + 7$
- $x^2 - 8x - 65$
- $x^2 - 8x + 12$
- $2x^2 + 14x + 24$
- $-x^2 + 15x + 54$

**Q7.** Fatore as expressões a seguir:

- $x^2 - 4x + 7$
- $x^2 + 6x + 13$
- $x^2 + 5x + 2$

GABARITO

**Q1.**

- |                                     |                        |
|-------------------------------------|------------------------|
| 1) $3(x + 2)$                       | 7) $0, 12(3 - 8x)$     |
| 2) $14(3 - x)$                      | 8) $0, \bar{3}(x + 2)$ |
| 3) $\frac{8}{3}(x + 4)$             | 9) $x(x + 2)$          |
| 4) $4(x + \frac{5}{21})$            | 10) $7x(5 - x)$        |
| 5) $\frac{2}{3}(x + \frac{20}{11})$ | 11) $x(3x^2 + 2x + 1)$ |
| 6) $0, 2(x + 2)$                    | 12) $x^{2013}(x + 1)$  |

**Q2.**

- 1)  $(x - 1)(x + 1)$
- 2)  $(2x - 5)(2x + 5)$
- 3)  $(12 - 13x)(12 + 13x)$
- 4)  $(\frac{2}{3} - 5x)(\frac{2}{3} + 5x)$
- 5)  $(\frac{x}{4} + \frac{11}{5})(\frac{x}{4} - \frac{11}{5})$
- 6)  $\frac{1}{5}(8 - 11x)(8 + 11x)$
- 7)  $\frac{1}{50}(3 - 2x)(3 + 2x)$
- 8)  $(x - \frac{1}{3})(x + \frac{1}{3})$
- 9)  $(x - \frac{1}{x})(x + \frac{1}{x})$
- 10)  $(x - 1)(x + 1)(x^2 + 1)$
- 11)  $(x^3 - 1)(x^3 + 1)$
- 12)  $x^2(x - 1)(x + 1)$

**Q3.**

- 1)  $(a + b)(x + 2)$
- 2)  $(a - b + c)(x + 4)$
- 3)  $(2x + 5)(3x - 2y)$
- 4)  $(x^3 - 6)(x + 9)$

5)  $(x^2 - 4)(x + 1)$

6)  $(x + \frac{1}{x})(y + \frac{1}{y})$

**Q4.**

- 1)  $(x - 1)(x^2 + x + 1)$
- 2)  $(x + 1)(x^2 - x + 1)$
- 3)  $(3 - 2x)(9 + 6x + 4x^2)$
- 4)  $(4 - 5x)(16 + 20x + 25x^2)$
- 5)  $(\frac{4}{5} + \frac{3}{2}x)(\frac{16}{25} - \frac{6}{5}x + \frac{9}{4}x^2)$
- 6)  $2(x - 4)(x^2 + 4x + 16)$
- 7)  $(7 - 10x^2)(49 + 70x^2 + 100x^4)$
- 8)  $(x + \frac{1}{x})(x^2 - 1 + \frac{1}{x^2})$
- 9)  $(x - \frac{1}{x})(x^2 + 1 + \frac{1}{x^2})$
- 10)  $x^3(x + 1)(x^2 - x + 1)$
- 11)  $x^3(2 + x)(4 - 2x + x^2)$
- 12)  $x^4(x + 1)(x^2 - x + 1)$

**Q5.**

- |                |                   |
|----------------|-------------------|
| 1) $(x + 1)^2$ | 4) $-3(x - 1)^2$  |
| 2) $(x - 1)^2$ | 5) $(2x - 1)^2$   |
| 3) $(x + 2)^2$ | 6) $(x - 0, 1)^2$ |

**Q6.**

- |                      |                      |
|----------------------|----------------------|
| 1) $(x - 2)(x - 3)$  | 4) $(x - 6)(x - 2)$  |
| 2) $(x + 1)(x + 7)$  | 5) $2(x + 3)(x + 4)$ |
| 3) $(x - 13)(x + 5)$ | 6) $-(x - 9)(x - 6)$ |

**Q7.**

- 1)  $(x - 2)^2 + 3$
- 2)  $(x + 3)^2 + 4$
- 3)  $(x + \frac{5}{2})^2 - \frac{3}{4}$