

Unit 1 Note Card Review

Problems

- 1) Find the real zeros of $f(x) = x^4 - 2x^2 - 8$
- 2) Find the end behavior and the y-intercept of $f(x) = x^4 - 2x^2 - 8$
- 3) $\frac{x^4 + 3x^3 - 2x^2 - 2}{x - 1}$
- 4) $(x - 1)(x^3 + 4x^2 + x + 1)$
- 5) Solve $0 = 3x^2 - 2x - 4$
- 6) Solve $0 = 3x^2 - 4x - 4$
- 7) Factor $3x^3 + 81$
- 8) Factor $40x^3 - 5$
- 9) Factor $7x^2 - 12x - 4$
- 10) Factor $3x^2 - 12x^2 - 5x + 20$
- 11) Write a function with end behavior of up left and up right with zeros of 2, -1, and 3 where 3 has a multiplicity of two.
- 12) Write a function with end behavior of up left and down right with zeros of 0, 5, and -8.
- 13) $(x + 2)(2x - 1) - (x^2 + 1)(x - 1)$
- 14) $(x + 5)(x - 5) - (x + 5)^2$

Answers

- 1) $-2, 2$
- 2) Up Left, Up Right; $f(0) = -8$
- 3) $x^3 + 4x^2 + 2x + 2$
- 4) $x^4 + 3x^3 - 3x^2 - 1$
- 5) $\frac{1 \pm \sqrt{13}}{3}$
- 6) $-\frac{2}{3}, 2$
- 7) $3(x+3)(x^2 - 3x + 9)$
- 8) $5(2x-1)(4x^2 + 2x + 1)$
- 9) $(x-2)(7x+2)$
- 10) $(x-4)(3x-5)$
- 11) $f(x) = (x-2)(x+1)(x-3)^2$
- 12) $f(x) = -x(x-5)(x+8)$
- 13) $-x^3 + 3x^2 + 2x - 1$
- 14) $2x^2 + 10x$