

Chapter 2 Review

Name _____

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

Describe the end behavior of the polynomial function by finding $\lim_{x \rightarrow \infty} f(x)$ and $\lim_{x \rightarrow -\infty} f(x)$.

1) $f(x) = 5x^4 + 6x^2 + 10$ 1) _____

2) $f(x) = 2x^2 - 4x^3 + 5x + 2$ 2) _____

Find the zeros of the function.

3) $f(x) = x^2 + 4x + 3$ 3) _____

4) $f(x) = x^3 - 16x$ 4) _____

Find the zeros of the polynomial function and state the multiplicity of each.

5) $f(x) = -4x^2(x - 8)(x + 4)^3$ 5) _____

Find a cubic function with the given zeros.

6) 2, -3, 5 6) _____

7) $\sqrt{6}, -\sqrt{6}, -4$ 7) _____

Solve the equation.

8) $4x^2 - 7x + 5 = 0$ 8) _____

Write the polynomial in standard form and identify the zeros of the function.

9) $f(x) = (x - 5i)(x + 5i)$ 9) _____

Write a polynomial function of minimum degree with real coefficients whose zeros include those listed. Write the polynomial in standard form.

10) $4i$ and $\sqrt{5}$ 10) _____

Write the function as a product of linear and irreducible quadratic factors, all with real coefficients.

11) $f(x) = x^3 - 6x^2 - 5x - 14$ 11) _____

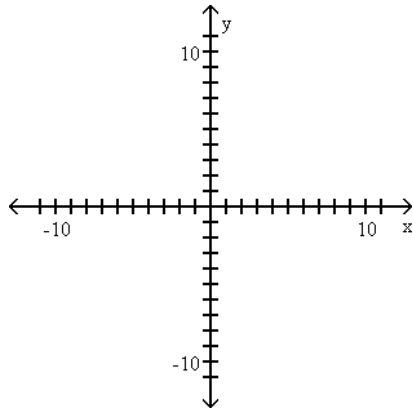
For the given function, find all asymptotes of the type indicated (if there are any)

12) $f(x) = \frac{(x - 3)(x + 5)}{x^2 - 1}$, vertical 12) _____

Provide an appropriate response.

- 13) Sketch the graph of a polynomial function which has a negative y-intercept, one local maximum and one local minimum, but has no absolute extrema.

13) _____



For the given function, find all asymptotes of the type indicated (if there are any)

14) $f(x) = \frac{x^2 + 6x - 7}{x - 8}$, slant

14) _____

15) $f(x) = \frac{3x^2 - 9x - 5}{4x^2 - 7x + 7}$, horizontal

15) _____

Solve the equation.

16) $\frac{7x}{x-7} - \frac{4}{x} = \frac{28}{x^2 - 7x}$

16) _____

17) $\frac{9}{x+5} - \frac{7}{x-5} = \frac{14}{x^2 - 25}$

17) _____

18) $\frac{2x}{x+2} + \frac{5}{x-5} = \frac{8}{x^2 - 3x - 10}$

18) _____

Solve the polynomial inequality.

19) $(x + 1)(x - 8)(x - 10) < 0$

19) _____

Solve the inequality.

20) $\frac{x^2 - 3x - 4}{x^2 + 11x + 30} < 0$

20) _____