

Chapter 2 Review Worksheet

Match appropriate concepts. On a separate sheet of paper, write a brief explanation as to why you believe your answer to be true.

- | | |
|---|---|
| 1. Quadratic equation | A. $x = y^2$ |
| 2. Zeros of the function | B. $f(x) = 2(x + 4)^2 + 5$ |
| 3. Not a function | C. Range |
| 4. Vertical asymptotes | D. Descartes's Rule of Signs |
| 5. All possible x values of a function | E. $f(x) = \frac{3x+2}{2x+5}$ |
| 6. All possible y values of a function | F. $f(x) = -x^6 + 2x^4 - 5$ |
| 7. Vertex at (4,-3) | G. $2x^2 + 3x - 4 = 0$ |
| 8. Horizontal asymptote at $y = \frac{3}{2}$ | H. zeros of denominator (rational function) |
| 9. Oblique asymptote | I. x intercepts |
| 10. Set x value equal to zero and solve for y | J. $f(x) = -x^3 + 2x^2 + 4x - 1$ |
| 11. The number possible (+) and (-) zeros | K. $f(x) = \frac{1}{2}(x-4)^2 - 3$ |
| 12. Parabola that has no x intercepts | L. $d(x)q(x) + r(x)$ |
| 13. Zeros of the numerator (rational function) | M. Domain |
| 14. Complex numbers | N. Finding y intercept |
| 15. Polynomial function where both sides go down | O. Slant asymptote |
| 16. Polynomial function up on left, down on right | P. n-1 |
| 17. A polynomial function has at most ____ turns. | Q. Imaginary number |
| 18. Division algorithm | R. x intercepts of rational function |

Practice Problems

1. Given the following function, describe the left and right behaviors.

$$f(x) = 3x^5 + 4x^2 - 2x + 7$$

2. What is the y intercept for the previous problem?

3. The zeros of an equation are really ____.

4. Find the zeros of the following function.

$$f(x) = x^3 - x^2 - 6x$$

5. What is the domain of the following function?

$$f(x) = \frac{5}{x-6}$$

6. What are all possible rational zeros of $f(x) = x^4 + 6x^3 - 2x^2 - 5x + 6$?

7. Find the quotient of $\frac{x^2 - x - 6}{x + 2}$.

8. How many possible positive real zeros are there in the function

$$f(x) = 2x^5 + 3x^4 - x^3 + 5x^2 - 4x + 1.$$

9. Find all asymptotes for $f(x) = \frac{x^2 + 5x - 6}{2x^2 - 32}$.

10. Describe the behavior of the vertex of the function $f(x) = (x - 4)^2 + 3$.