

Algebra 2 Final Review 2020

1) What is the transformation of the graph of $y = x^2$ that yields $y = -3(x - 2)^2 + 1$?

2) Give the domain and range of the function shown in **Figure 1**.

3) Given $f(x) = 2x^2 - x - 3$ and $g(x) = x + 1$, find $\frac{f(x)}{g(x)}$.

4) Solve $\frac{x^2+2x-3}{2x^2+5x-3} - \frac{x}{6x+3} = \frac{x^2-1}{4x^2-1}$.

5) Simplify $(5x^2 - 17x + 6) \div (x - 3)$

6) Factor $25x^2 - 16y^2$.

7) Simplify $\frac{1}{3x^2+2x-1} + \frac{2}{x^2-x-2}$.

8) Simplify $\frac{3x+3}{x^2+3x+2} \cdot \frac{x^2-x-6}{2x^2-9x+9}$.

9) Simplify $\frac{2x^2-x-3}{4x^2-9} \div \frac{x^2-9x+14}{4x^2-2x-6}$.

10) What is the simplified form of the rational expression $\frac{4x^2-36x+56}{x^3-9x^2+14x}$?

11) What is the degree of the simplest polynomial with integer coefficients 3 and $\sqrt{3}$ as zeros?

12) Identify the asymptotes, domain, and range of the function $g(x) = \frac{2}{x+4} + 1$.

13) Find the inverse of $f(x) = 3(x - 4)^2 + 1$.

14) Solve the equation $\sqrt[3]{4x^2 - 4x + 1} - \sqrt[3]{x} = 0$.

15) Find the inverse of $f(x) = 3\sqrt{x - 3} + 3$.

16) Solve the equation $(3x + 28)^{\frac{1}{2}} = x$.

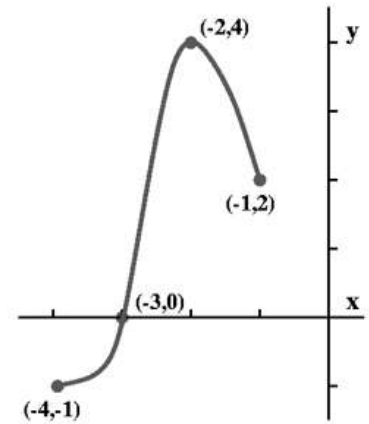


Figure 1

- 17) Write a polynomial function that could have generated the graph shown in **Figure 2**.

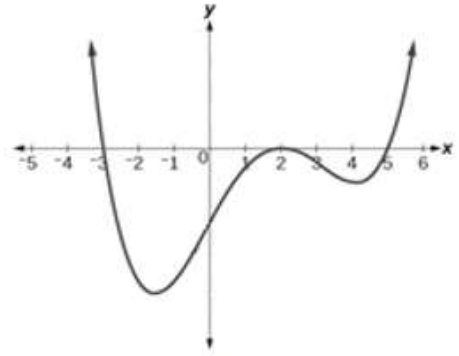


Figure 2

- 18) Write a function that could have generated the graph shown in **Figure 3**?

19) Simplify $\sqrt[4]{48x^5y^6}$.

20) Simplify $\frac{3}{2}x^{\frac{2}{3}}y^{\frac{1}{2}} \cdot 4x^{-\frac{1}{3}}y^{\frac{3}{2}}$.

- 21) State the domain and range for the function

$$h(x) = e^{x-7} - 2.$$

- 22) An ancient Greek theater had 30 seats in the front row. Each row behind had 2 more seats. Write a recursive rule for the number of seats a_n in row n . How many seats are in the 7th row?

- 23) Write an explicit rule for the n^{th} term of the arithmetic sequence $-7, -4, -1, 2, \dots$

- 24) Write the function whose graph is shown in **Figure 4**.

- 25) Graph $f(x) = \sqrt{x-5} + 1$. State the domain and range.

- 26) Graph $g(x) = 2e^{x+1} + 3$. State the domain and range.

- 27) You deposit \$250 in an account that pays 2.1% annual interest. What is the balance after 2 years if the interest is compounded monthly?

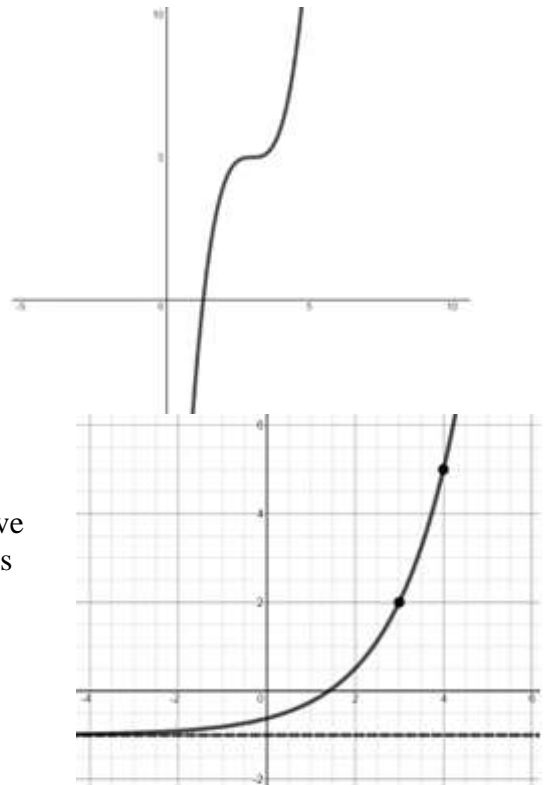


Figure 4

Algebra 2 Guideline for Week 5 May,18 – May,22

Please, complete this Final Review Assignment to know how much you learned this year.

If you need help, consider using the following resources:

- **Notes from our class**
- **On-line HMH interactive lessons**

This assignment is for self-reflection on your learning and you do not need to submit it.

Thank you!