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**

Please, message me on schoology if you have questions and need additional help.

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

But, if you choose, you are welcome to send your completed assignment to me for my feedback by May, 22.

Thank you!

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**.

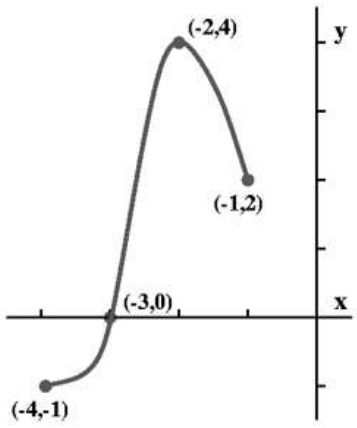


Figure 1

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

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

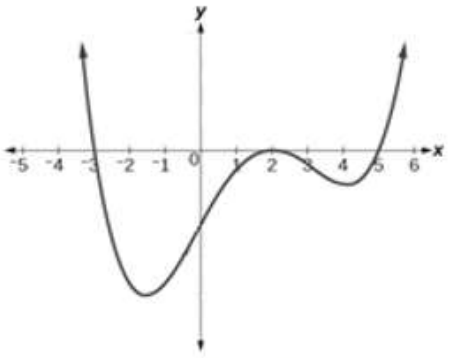
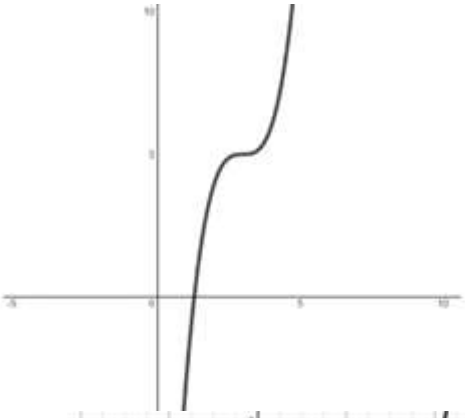


Figure 2



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 $-7, -4, -1, 2, ...$

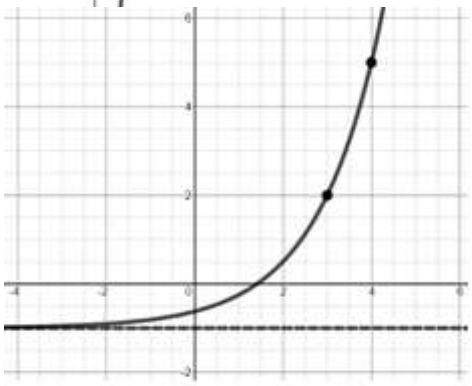


Figure 4

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?