MAT 151 Quiz 9

Mar. 26, 2020

Use Figure 1 to answer the next three questions.

x	-2	0	2	4
$s(x)$	36	10	-16	-42

Figure 1: Input-Output Table for $s(x)$

1. $\boxed{22\text{F}}$ Which type of functions (linear, quadratic or exponential) would you use to model this function $s(x)$?

2. $\boxed{17\text{F}}$ Write a function equation for $s(x)$ and then write an equation for $s^{-1}(x)$, the inverse function of $s(x)$.

3. $\boxed{16\text{F}}$ Let $w(x) = (x-4)^2 + 12$. Evaluate $w(s(2))$.

Let $q(x) = \dfrac{x}{x^2 - x - 12}$. Answer the next five questions.

4. $\boxed{14\text{F}}$ What is the domain and the range of $q(x)$?

5. $\boxed{19\text{F}}$ Find all the horizontal and vertical asymptotes of $q(x)$.

6. $\boxed{18\text{F}}$ What is the average rate of change of $q(x)$ on the interval $5 \le x \le 7$?

7. $\boxed{21\text{F}}$ On what intervals is $q(x)$ decreasing?

8. $\boxed{20\text{F}}$ Solve the inequality $q(x) > 10$.

9. $\boxed{23\text{F}}$ Given a function $h(x) = \ln(x)$ and $k(x) = 5\ln(-3(x+1))$. Describe how to get the graph of $k(x)$ from the graph of $h(x)$. Be very precise about the order of the transformation and the unit of each transformation.