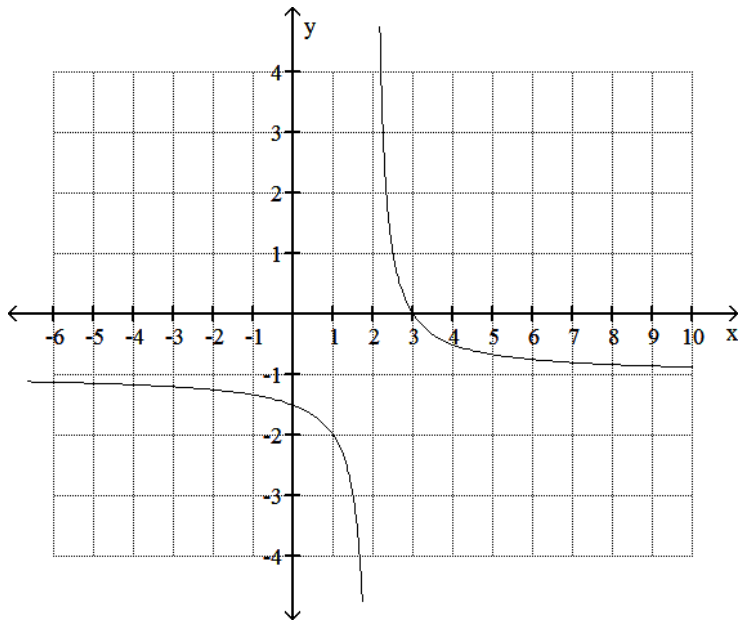


SHORT ANSWER.

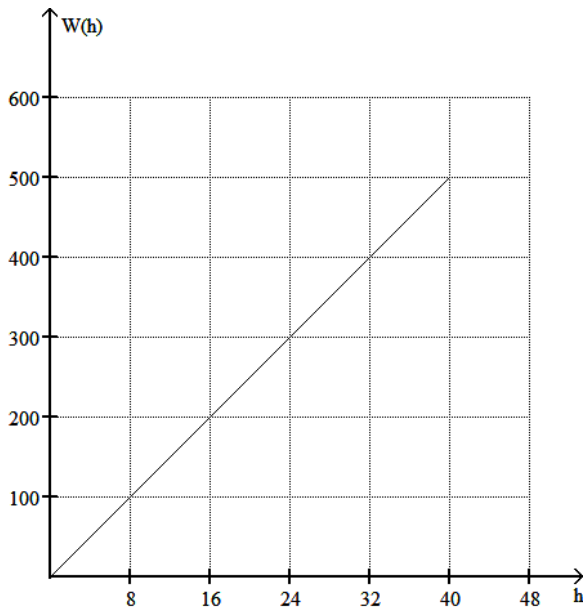
1. Use the graph of the given function to determine each of the following. Where applicable, use interval notation.



- a) the domain of f
- b) the value of the zero(s) of f
- c) the approximate value of $f(0)$
- d) the equation of the vertical asymptote
- e) the number $f(x)$ approaches as x approaches infinity
- f) interval(s) on which f is increasing
- g) values of x for which $f(x) < 0$
- h) the value(s) of x for which $f(x) = -2$

2. Solve.

The linear function whose graph is shown below shows the relation between hours worked and wages earned.



- Determine the value of $W(24)$
- Find a linear function that models the graph.
- What does the slope indicate in this context?
- State the domain and range of the function.

3. Solve.

You have 92 feet of fencing to enclose a rectangular plot that borders on a river. You will not fence the side along the river.

a) Using the fact that the length of fence will be 92 feet, write y in terms of x .

b) Write the area of the rectangle as a function of x .

c) Find the length and width of the plot that will maximize the area.

d) What would be an appropriate domain for this area function?

4. Solve.

According to the U.S. Bureau of the Census, in 1990 there were 22.4 million residents of Hispanic origin living in the United States. By 2000, the number had increased to 35.3 million. The exponential growth function $A = 22.4e^{kt}$ describes the U.S. Hispanic population, A , in millions, t years after 1990.

a) Find k , correct to three decimal places.

b) Use the resulting model to project the Hispanic resident population in 2010.

c) In which year will the Hispanic resident population reach 60 million?