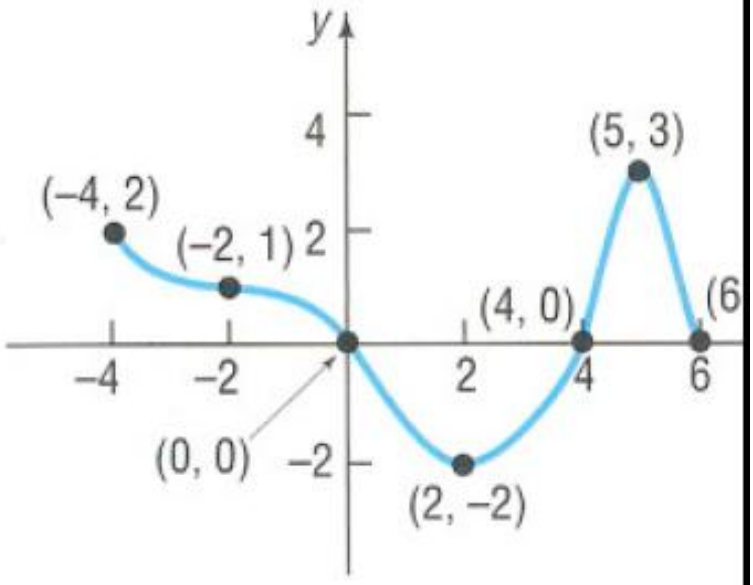
10. Use the given graph of the function f to answ



(a) Find $f(0)$ and $f(6)$.
(b) Find $f(2)$ and $f(-2)$.
(c) Is $f(3)$ positive or negative?
(d) Is $f(-1)$ positive or negative?
(e) For what values of x is $f(x) = 0$?
(f) For what values of x is $f(x) < 0$?
(g) What is the domain of f?
(h) What is the range of f?
(i) What are the x-intercepts?
(j) What is the y-intercept?
(k) How often does the line $y = -1$ inte
(l) How often does the line $x = 1$ interse
(m) For what value of x does $f(x) = 3$?
(n) For what value of x does $f(x) = -2$?

Lesson 4 – Forms of Linear Equations

Determine the equation of a line that passes through (3,-2) and is perpendicular to $3x - 4y - 12 = 0$

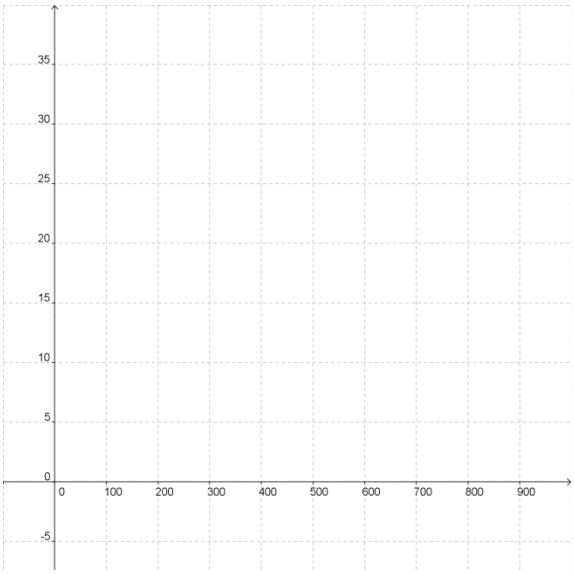
Verbal Description:

Mr Robertson is climbing a mountain. At an altitude of 200m it is 20 degrees Celsius, but after climbing to 500 metres the temperature has dropped to 15 degrees Celsius.

Data Table: List the points that the question gives you.

x						
y						

Graph: Label the axes and the function.



Dependent variable:

Independent variable:

Equation:

Slope:

Meaning of Slope:

Y-intercept:

Meaning of y-intercept :

Questions:

(a) What is the temperature at sea-level?

(b) What will be the temperature at 1000m?

(c) Mr Robertson climbed this mountain in summer. What might be the effect on the graph of climbing the mountain in winter? Explain.

(d) What do you think the domain of the function might be?

(e) What do you think the range of the function might be?

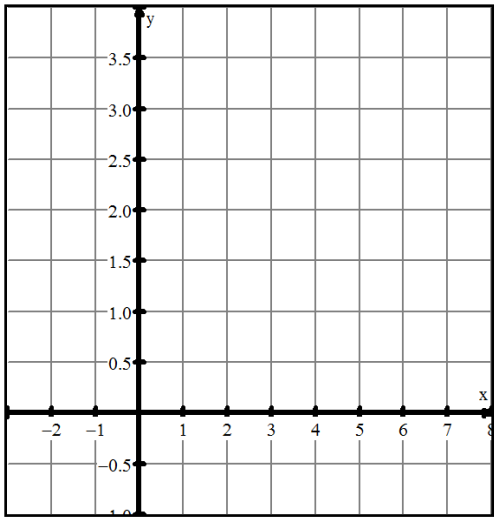
a. The charge for a taxi ride in New York City is $10.00 for the first half of a mile and then $1.50 for each additional quarter of a mile (rounded to the nearest quarter mile.)

i. Make a data table showing the cost in dollars (***C***) of a trip as a function of the distance travelled, in miles (***m***). So the function will be called ***C***(***m***)
ii. What is the cost for a 1.75 mile trip?
iii. How far can you go for $25.00?
iv. Sketch the graph, showing key points.

(B)

a. EXAMPLE #1: Consider the function $f(x)=\begin{cases} -2x+1 & \text{if } -2\le x<1 \\ 2 & \text{if } x=1 \\ \frac{1}{2}x-3 & \text{if } x>1 \end{cases}$.

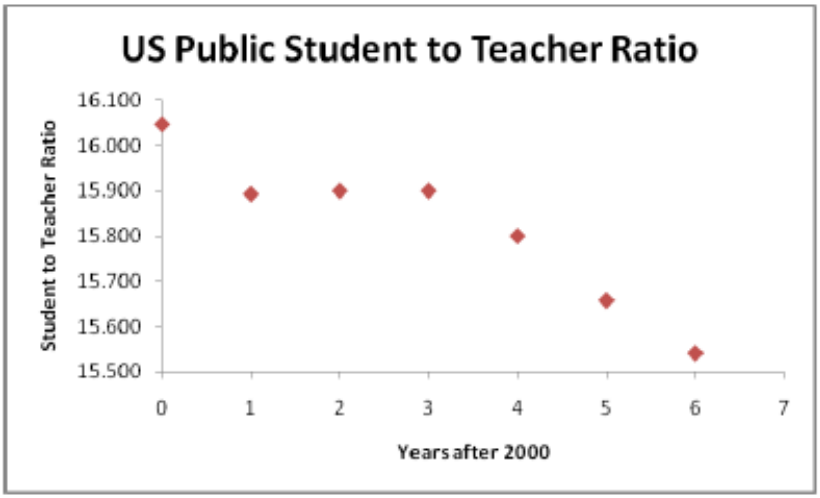
i. Determine $f(-2), f(0), f(1),$ and $f(2)$.
ii. Determine the domain of $f(x)$
iii. Graph $f(x)$.
iv. Determine the range of $f(x)$



Lesson 5 – Scatter plots

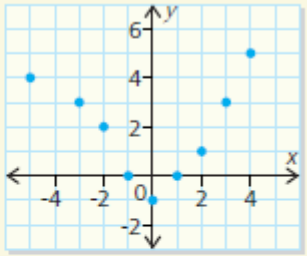
In an earlier technology assignment, you created a scatter plot of the US Student to Teacher Ratio for public schools from the table below. The scatter plot is shown to the right of the table.

Years after 2000	US Student to Teacher Ratio
0	16.048
1	15.893
2	15.900
3	15.900
4	15.800
5	15.657
6	15.540



Now that we have the scatter plot of the data, we want to find a model for the data. In this technology assignment, we'll investigate two models. The first model we'll find is a linear model of the form

10. The graph of $y = f(x)$ is shown.



(a) State the domain and range of f.

(b) Express f^{-1} as a set of ordered pairs.

(c) Graph f and f^{-1} on the same axes.

(d) Find $f(1)$.

(e) Find $f^{-1}(1)$.

(f) Find $f^{-1}(0)$.

(g) Find $f(-4)$.

12. Find the equation for f^{-1} if $f(x) = \frac{x+3}{2}$.

13. A printing company charges \$100 to set up the artwork and \$11.50 for every T-shirt printed. g is the relation between the total charge for the printing in dollars, excluding taxes, and the number of shirts printed.

(a) Express g in function notation.

(b) Determine $g^{-1}(x)$.

(c) Describe g^{-1} as a rule.

(d) State a reasonable domain and range for g^{-1}.

(e) Write a question that would require the evaluation of $g^{-1}(1000)$.