

Part I – Short Answer (2 pts. each, 14 pts. total for this part)

Fill in the blank with a word or phrase which is described by the prompt.

- For a linear function, the rate of change is equivalent to the slope of a line.
- Regression is the process of finding a “best fit” equation for a set of data points.
- The process of using a function or graph to estimate values which lie between known data points is called interpolation.
- The process of using a function or graph to estimate values which lie beyond known data points is called extrapolation.
- Simplify: $i^{39} = \underline{-i}$
- The correlation coefficient is a measure of how closely a function represents a set of data points – it equals 0 when the points have no connection to the graph and equals 1 when the points are perfectly positively correlated.
- The maximum or minimum value of a function corresponds to a point on the graph of the function called the vertex.

$$4 \overline{) 39} \begin{array}{r} 9 \\ 36 \\ \hline 3 \end{array} \quad \begin{array}{l} i^{36} = 1 \\ i^3 = -i \\ \hline i^{39} = -i \end{array}$$

Part II – Short(er) Problems – 6 pts each (total of 36 pts for this part)

- Find the equation of the circle with center at (1, 0), passing through the point (4, 2).

$$(x-h)^2 + (y-k)^2 = r^2$$

\uparrow \uparrow
 1 0

$$r = \sqrt{(4-1)^2 + (2-0)^2}$$

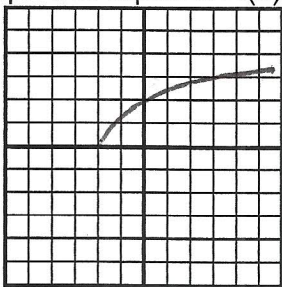
$$= \sqrt{3^2 + 2^2} = \sqrt{13}$$

$$r^2 = 13$$

$$(x-1)^2 + y^2 = 13$$

- Graph the equation $f(x) = \sqrt{x+2}$
 - State the domain and range of $f(x)$

range \uparrow



domain \rightarrow

- State the domain and range of $f(x)$

domain $[-2, \infty)$

range $[0, \infty)$

