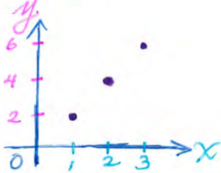


Correlation chart for AP Precalculus LO 1.1.B Varying together (graphical)

College Board AP Precalculus LO and EK codes are found in the Course and Exam Description available at <https://apcentral.collegeboard.org/courses/ap-precalculus/course>

OpenStax *Precalculus 2e* is a free textbook at <https://openstax.org/details/books/precalculus-2e>

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Example	Requirement	Title	Reward	Correlation
	<ul style="list-style-type: none"> <input type="checkbox"/> Have function f mapping input values of independent variable x to corresponding output values of dependent variable y <input type="checkbox"/> The set of ordered pairs of f is $\{(x, y) x \in X, y = f(x)\}$ <input type="checkbox"/> Figure G is constructed by plotting each ordered pair on the xy coordinate plane <input type="checkbox"/> with values of x represented along the horizontal axis <input type="checkbox"/> and corresponding values of y represented along the vertical axis 	<p style="text-align: center;">→</p> <p style="text-align: center;">Definitions of graph of a function</p> <p style="text-align: center;">←</p>	<p>Figure G is the graph of function f.</p>	<p style="text-align: center;">AP Precalculus EK 1.1.B.1</p>
	<ul style="list-style-type: none"> <input type="checkbox"/> Figure G is the graph of function f. 	<p style="text-align: center;">→</p> <p style="text-align: center;">Properties of a graph of a function</p> <p style="text-align: center;">←</p>	<p>Figure G displays a set of input value-output value pairs.</p> <p>Figure G shows how input values and output values vary [together].</p>	
	<ul style="list-style-type: none"> <input type="checkbox"/> Have function f mapping input values of independent variable x to corresponding output values of dependent variable y <input type="checkbox"/> x has a related quantity or quality θ (could be a feature of a real-life application scenario) <input type="checkbox"/> y has a related quantity or quality ϕ (could be a feature of a real-life application scenario) <input type="checkbox"/> Speaker S wants to communicate to listener L information helpful for drawing a graph of function f 	<p style="text-align: center;">→</p> <p style="text-align: center;">AP Precalculus EK 1.1.B.2</p> <p style="text-align: center;">←</p>	<p>Speaker S can try the following:</p> <ol style="list-style-type: none"> 1. Describe a manner in which θ can change. 2. Describe a manner in which ϕ correspondingly changes (or doesn't change). <p>Listener L can use the above description from speaker S to try to draw a graph of function f. (The description below is not strictly part of AP Precalculus EK 1.1.B.2, but helpful for clarification):</p> <ol style="list-style-type: none"> 1. Use the described manner in which θ can change to identify a corresponding manner in which x can change. 2. Use the described corresponding manner in which ϕ changes (or doesn't change) to identify a corresponding manner in which y changes (or doesn't change). 3. Use the identified corresponding changes in x and y to narrow down the choice of possible graphs. 	<p style="text-align: center;">AP Precalculus EK 1.1.B.2</p>

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Example	Requirement	Title	Reward	Correlation
	<ul style="list-style-type: none"> <input type="checkbox"/> Have function f mapping input values of independent variable x to corresponding output values of dependent variable y <input type="checkbox"/> Figure G is the graph of function f. <input type="checkbox"/> $X = \{x_1, x_2, x_3, \dots\}$ is the domain of f <input type="checkbox"/> I is a contiguous interval in X <input type="checkbox"/> Throughout I, the rate of change of f is increasing 	<p>→</p> <p>Definition of concave up</p> <p>←</p>	Graph G of function f is concave up on interval I .	AP Precalculus EK 1.1.B.3
	<ul style="list-style-type: none"> <input type="checkbox"/> Have function f mapping input values of independent variable x to corresponding output values of dependent variable y <input type="checkbox"/> Figure G is the graph of function f. <input type="checkbox"/> $X = \{x_1, x_2, x_3, \dots\}$ is the domain of f <input type="checkbox"/> I is a contiguous interval in X <input type="checkbox"/> Throughout I, the rate of change of f is decreasing 	<p>→</p> <p>Definition of concave down</p> <p>←</p>	Graph G of function f is concave down on interval I .	AP Precalculus EK 1.1.B.4
	<ul style="list-style-type: none"> <input type="checkbox"/> Have function f mapping input values of independent variable x to corresponding output values of dependent variable y <input type="checkbox"/> Figure G is the graph of function f. <input type="checkbox"/> $f(a) = 0$ 	<p>→</p> <p>Thm: Correspondence between zero of a function and whether graph of function intersects x-axis</p> <p>←</p>	Graph G of function f intersects the x-axis at $x = a$.	AP Precalculus EK 1.1.B.5
		<p>→</p> <p>Definition of zero of a function</p> <p>←</p>	a is a zero of function f .	