Correlation chart for AP Precalculus LO 1.1.A Varying together (analytic)

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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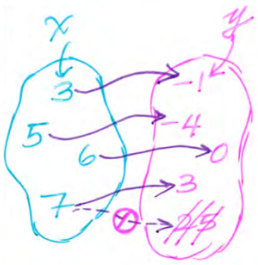
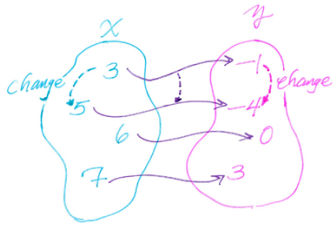
Example	Requirement	Title	Reward	Correlation
x | y 3 | -1 5 | -4 6 | 0 7 | 3 7 | 25	☐ Set R is a set of ordered pairs $\{(x_1, y_1), (x_2, y_2), (x_3, y_3) \ldots\}$ ☐ Set $X = \{x_1, x_2, x_3, \ldots\}$ (OK to omit repeats) ☐ Variable x takes, one at a time, the values in set X ☐ Set $Y = \{y_1, y_2, y_3, \ldots\}$ (OK to omit repeats) ☐ Variable y takes, one at a time, the values in set Y	→ Definitions of **relation**, **input value**, **independent variable**, **output value**, **dependent variable**, **domain**, and **range** ←	Set R is a **relation** that associates **input values** of **independent variable** x with **output values** of **dependent variable** y. Set X of all input values is the **domain** of the relation, and set Y of all output values is the **range** of the relation.	**AP Precalculus** EK 1.1.A.1 is written such that this content seems to be assumed prior knowledge. **OpenStax** Precalculus 2e 1.1 (HW not assigned)
	☐ Set F is a set of ordered pairs $\{(x_1, y_1), (x_2, y_2), (x_3, y_3) \ldots\}$ ☐ If there are any repeated values among $x_1, x_2, x_3, \ldots$, the associated values among $y_1, y_2, y_3, \ldots$ are also repeats. ☐ Set $X = \{x_1, x_2, x_3, \ldots\}$ (OK to omit repeats) ☐ Variable x takes, one at a time, the values in set X ☐ Set $Y = \{y_1, y_2, y_3, \ldots\}$ (OK to omit repeats) ☐ Variable y takes, one at a time, the values in set Y	→ Definitions of **function**, **input value**, **independent variable**, **output value**, **dependent variable**, **domain**, and **range** ←	Set F is a **function** that maps **input values** of the **independent variable** x to corresponding **output values** of the **dependent variable** y. Set X of all input values is the **domain** of the function, and set Y of all output values is the **range** of the function. (The usual translation of the condition that "If there are any repeated values among $x_1, x_2, x_3, \ldots$ the associated values among $y_1, y_2, y_3, \ldots$ are also repeats" is that each input value is mapped to **exactly one** output value).	**AP Precalculus** EK 1.1.A.1 **OpenStax** Precalculus 2e **1.1** Exercises # 1, 2; 6, 7; 8-26; 60, 61, 62; 63, 64, 65; 76, 77, 78; 79, 80, 81; 82, 83, 84; 85, 86, 87 **1.2** Exercises # 7-25 (odds); 27-37 (odds); **57**, 59; 61
	☐ Have function F mapping input values of independent variable x to corresponding output values of dependent variable y ☐ I stands for the idea that changing the input value of the independent variable x can change the associated output value of the dependent variable y in a corresponding way.	→ Style convention for AP Precalculus **EK 1.1.A.2** (1st clause) ←	Idea I is expressed by writing, "The input values and output values of function F **change in tandem** according to the rule for function F."	**AP Precalculus** EK 1.1.A.2 Independent (first) clause

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Example	Requirement	Title	Reward	Correlation
	☐ Have function f mapping input values of independent variable x to corresponding output values of dependent variable y	→ Style convention for AP Precalculus **EK 1.1.A.2** (2nd clause)	The function rule for function f can be expressed in the following ways:	**AP Precalculus** EK 1.1.A.2 Dependent (second) clause **OpenStax** Precalculus 2e **1.1** Exercises # 27-31; 32, 33; 34-38; 39; 52, 53, 54; 66; 67; 68-73; 74, **75**; 88, 89, 90, 91 **1.4** Exercises # 5, 7, 9
			1. **Graphically** – plot points with ordered pairs of form (x, y) where values of x are represented along the horizontal axis and values of y are represented along the vertical axis.	
x | 1 | 2 | 3 y | 2 | 4 | 6 $\{(1,2), (2,4), (3,6)\}$			2. **Numerically** – written as a table or list of ordered pairs of input and output values	
$y = f(x) = 2x, x \in \{1,2,3\}$			3. **Analytically** – written as an algebraically notated equation in the variables x and y in the format $y = f(x)$ where $f(x)$ stands for an algebraic expression in terms of x into which a particular input value of x can be substituted to yield the corresponding particular output value of y	
"The input values are 1, 2, and 3, and the corresponding output values are obtained by **doubling** the input values."			4. **Verbally** – as written sentence(s) describing how the independent variable is related to the dependent variable	

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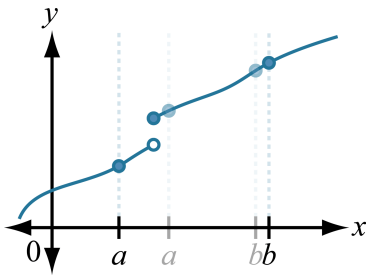
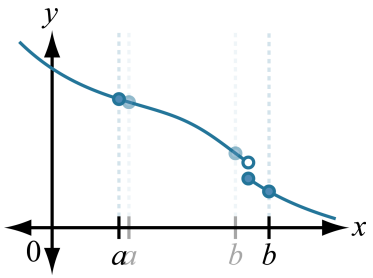
	☐ Have function f mapping input values of independent variable x to corresponding output values of dependent variable y ☐ I stands for an interval of x-values in the domain of function f ☐ Considering all pairs of x-values a and b ☐ such that $a, b \in I$ ☐ with $a < b$ ☐ guarantees that $f(a) < f(b)$	← Definition of **increasing** function →	Function f is **increasing** over the interval I	**AP Precalculus** EK 1.1.A.3 **OpenStax** Precalculus 2e 1.3 (see next row)
	☐ Have function f mapping input values of independent variable x to corresponding output values of dependent variable y ☐ I stands for an interval of x-values in the domain of function f ☐ Considering all pairs of x-values a and b ☐ such that $a, b \in I$ ☐ with $a < b$ ☐ guarantees that $f(a) > f(b)$	← Definition of **decreasing** function →	Function f is **decreasing** over the interval I	**AP Precalculus** EK 1.1.A.4 **OpenStax** Precalculus 2e **1.3** Exercises # 19, 21