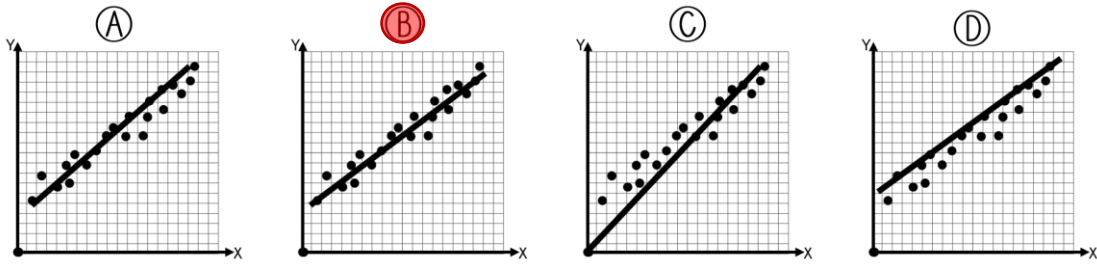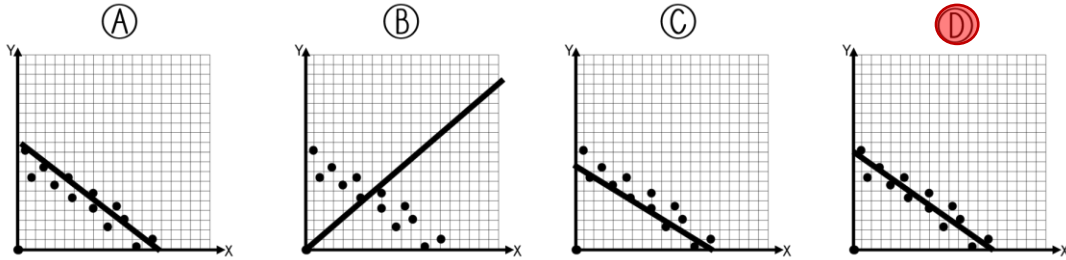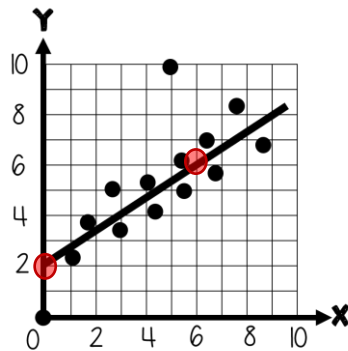**②**

Ⓐ   Ⓑ   Ⓒ   Ⓓ

③

Ⓐ   Ⓑ   Ⓒ   Ⓓ

CALCULATING a Line of Best Fit

EXAMPLE 2: Write an equation in slope-intercept form for the line of best fit drawn on the scatter plot below.

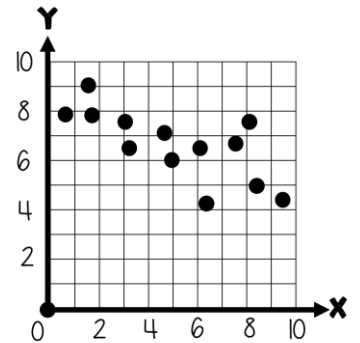**STEP 1:** Identify the ___slope___ (m) of the **line** (ignore the points of the scatter plot, focusing only on the line itself)

STEP 2: Identify the __y__-intercept (b) of the **line**.

STEP 3: Write your equation in $y = mx + b$ format.
    Y = 2/3x + 2

EXAMPLE 3: Which equation would be the most accurate line of best fit for the scatter plot below?
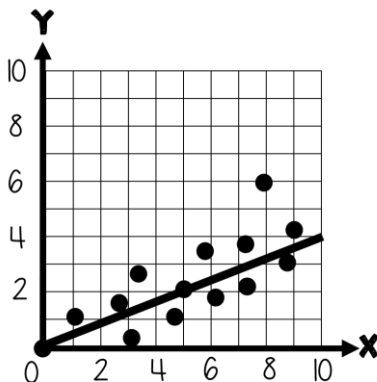
Ⓐ $y = -x + 9$

Ⓑ $y = \frac{1}{2}x + 9$

Ⓒ $y = -\frac{2}{3}x$

Ⓓ $y = -\frac{1}{2}x + 9$

PRACTICE PROBLEMS: For each scatter plot tell which line of best fit is most accurate.

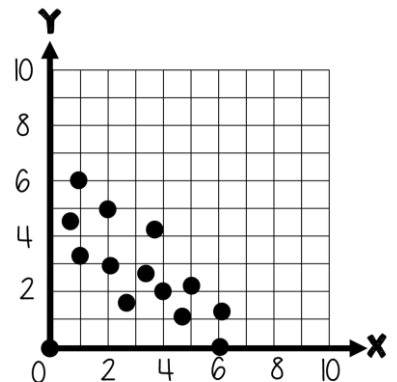**❹** Which equation represents the line of best fit drawn on the scatter plot below?

Ⓐ $y = -0.5x + 2$

Ⓑ $y = 0.5x$

Ⓒ $y = 0.4x$

Ⓓ $y = x$

❺ Which equation would be the most accurate line of best fit for the scatter plot below?

Ⓐ $y = -x + 6$

Ⓑ $y = -2x + 6$

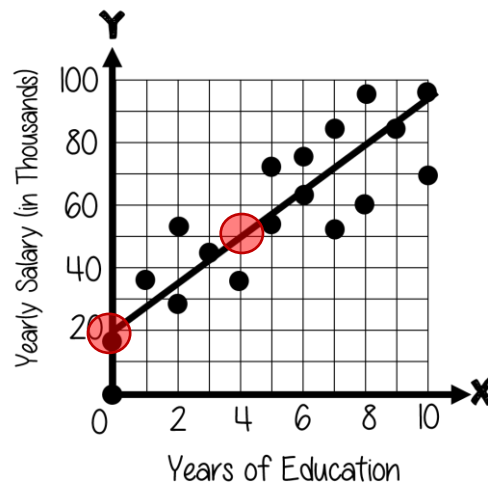Ⓒ $y = 6x$

Ⓓ $y = -\frac{1}{2}x + 6$

INTERPRETING a Line of Best Fit

EXAMPLE 4: The scatter plot below shows data collected from 17 different people. It compares the number of years of "higher education" (years after high school) they received, including trade schools, apprenticeships, and academic colleges. A line of best fit has been drawn for the data.

PART A: Interpret the slope.

- First, focus on the _____line_____ itself. Find two exact _coordinates_ that the line passes through in order to calculate the slope (circle them).
- Use this number to describe the rate of _____change_____ in the trend of the scatter plot:

"The slope tells us that there is an average salary _____increase_____ of $_7,500_____ for every _____year_____ of education past high school."

Graph: Y-axis "Yearly Salary (in Thousands)" marked 20, 40, 60, 80, 100; X-axis "Years of Education" marked 0, 2, 4, 6, 8, 10.

PART B: Interpret the y-intercept.

- Identify the y-intercept of the _____line_____ itself.
- Use this number to describe the _____starting_____ or beginning value of the situation.

"The _y_-intercept tells us that the average _____starting_____ salary for a person with _____0_____ years of education past high school is $20,000."
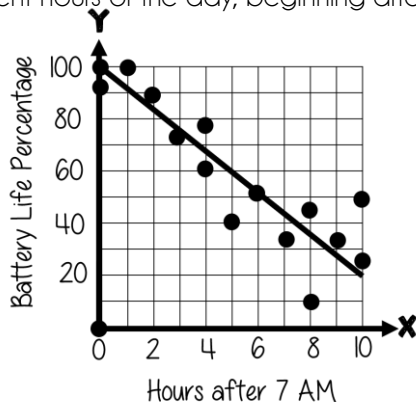
PART C: Use the line of best fit to determine the average salary a person with 7 years of education might be predicted to receive.

- Find ___7___ years on the x-axis and follow it up to the _____line_____ itself, NOT a point from the scatter plot that corresponds to 7
- OR use 7 as x in the equation for the line of best fit: $y =$ _7500x + 20,000_

"According to the line of _____Best___fit____, a person with ___7___ years of education past high school might expect to receive an _____average_____ salary of approximately $_____$72,500_____."

PRACTICE PROBLEMS: Use the scatter plot below to answer questions 6-7. Choose the one best answer for each question.

The scatter plot below shows the cell-phone battery life of 15 different people recorded at different hours of the day, beginning after 7 AM.

Graph: Y-axis "Battery Life Percentage" marked 20, 40, 60, 80, 100; X-axis "Hours after 7 AM" marked 0, 2, 4, 6, 8, 10.

❻ Interpret the slope of the line of best fit.

Ⓐ An average of 80% battery life was used over the course of 10 hours.
Ⓑ Battery life of cell phones decrease by an average of 8% each hour.
Ⓒ Some phones used more battery life than others in the same amount of time.
Ⓓ Battery life of cell phones decrease by an average of 10% each hour.

❼ Interpret the y-intercept of the line of best fit.

Ⓐ An average of 80% battery life was used over the course of 10 hours.
Ⓑ Battery life of cell phones decrease by an average of 8% each hour.
Ⓒ Some phones still have 100% battery life at 8 AM.
Ⓓ The average cell phone begins the day at 7 AM with 100% battery life.

Test Practice

#	Answer
❶	B
❷	F
❸	A
❹	C
❺	B
❻	A
❼	C
❽	A