

BIG IDEAS

For Your Notebook

Big Idea 1

Writing Linear Equations in a Variety of Forms

Using given information about a line, you can write an equation of the line in three different forms.

Form	Equation	Important information
Slope-intercept form	$y = mx + b$	<ul style="list-style-type: none"> The slope of the line is m. The y-intercept of the line is b.
Point-slope form	$y - y_1 = m(x - x_1)$	<ul style="list-style-type: none"> The slope of the line is m. The line passes through (x_1, y_1).
Standard form	$Ax + By = C$	<ul style="list-style-type: none"> A, B, and C are real numbers. A and B are not both zero.

Big Idea 2

Using Linear Models to Solve Problems

You can write a linear equation that models a situation involving a constant rate of change. Analyzing given information helps you choose a linear model.

Choosing a Linear Model	
If this is what you know then use this equation form
constant rate of change and initial value	slope-intercept form
constant rate of change and one data pair	slope-intercept form or point-slope form
two data pairs and the fact that the rate of change is constant	slope-intercept form or point-slope form
the sum of two variable quantities is constant	standard form

Big Idea 3

Modeling Data with a Line of Fit

You can use a line of fit to model data that have a positive or negative correlation. The line or an equation of the line can be used to make predictions.

- Step 1** Make a scatter plot of the data.
- Step 2** Decide whether the data can be modeled by a line.
- Step 3** Draw a line that appears to follow the trend in data closely.
- Step 4** Write an equation using two points on the line.
- Step 5** Interpolate (between known values) or extrapolate (beyond known values) using the line or its equation.