

**CHAPTER  
4****Parents as Partners***For use with Writing Linear Equations*

**Chapter Overview** One way you can help your student succeed in this chapter is by discussing the lesson goals in the chart below. When a lesson is completed, ask your student the following questions. “What were the goals of the lesson? What new words and formulas did you learn? How can you apply the ideas of the lesson to your life?”

Lesson Title	Lesson Goals	Key Applications
<b>Write Linear Equations in Slope-Intercept Form</b>	Write equations of lines.	<ul style="list-style-type: none"> <li>Recording Studio</li> <li>Aquarium</li> <li>Firefighting</li> </ul>
<b>Use Linear Equations in Slope-Intercept Form</b>	Write an equation of a line using points on the line.	<ul style="list-style-type: none"> <li>Gym Membership</li> <li>BMX Racing</li> <li>Biology</li> </ul>
<b>Write Linear Equations in Point-Slope Form</b>	Write linear equations in point-slope form.	<ul style="list-style-type: none"> <li>Working Ranch</li> <li>Television</li> <li>Traffic Delays</li> </ul>
<b>Write Linear Equations in Standard Form</b>	Write equations in standard form.	<ul style="list-style-type: none"> <li>Library</li> <li>Gardening</li> <li>Nutrition</li> </ul>
<b>Write Equations of Parallel and Perpendicular Lines</b>	Write equations of parallel and perpendicular lines.	<ul style="list-style-type: none"> <li>State Flag</li> <li>Intersections</li> <li>Biology</li> </ul>
<b>Fit a Line to Data</b>	Make scatter plots and write equations to model data.	<ul style="list-style-type: none"> <li>Swimming Speeds</li> <li>Bird Populations</li> <li>Alligators</li> </ul>
<b>Predict with Linear Models</b>	Make predictions using best-fitting lines.	<ul style="list-style-type: none"> <li>CD Singles</li> <li>Softball</li> <li>Sailboats</li> </ul>

**Big Ideas for this Chapter**

In this chapter, you will apply the big ideas listed in the Chapter Opener and reviewed in the Chapter Summary.

1. Writing linear equations in a variety of forms
2. Using linear models to solve problems
3. Modeling data with a line of fit

**CHAPTER 4** **Parents as Partners** *continued*  
For use with *Writing Linear Equations*

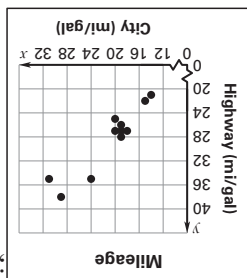
**Key Ideas** Your student can demonstrate understanding of key concepts by working through the following exercises with you.

Lesson	Exercise																								
<b>Write Linear Equations in Slope-Intercept Form</b>	You take guitar lessons. There is a one-time rental fee of \$75 and each lesson is \$20 per hour. Write an equation that gives the total cost of the guitar lessons as a function of lesson time $t$ (in hours). Then find the total cost for guitar lessons if you schedule 12 lessons.																								
<b>Use Linear Equations in Slope-Intercept Form</b>	Write an equation in slope-intercept form of the line that passes through the point $(2, -1)$ and has a slope of $-3$ .																								
<b>Write Linear Equations in Point-Slope Form</b>	Write an equation in point-slope form of the line that passes through the point $(-2, 3)$ and has a slope of $-2$ .																								
<b>Write Linear Equations in Standard Form</b>	Write an equation in standard form of the line that passes through the points $(5, 2)$ and $(2, -2)$ .																								
<b>Write Equations of Parallel and Perpendicular Lines</b>	Write an equation of the line that passes through the point $(3, -2)$ and is (a) parallel to and (b) perpendicular to the line $y = \frac{1}{3}x + 3$ .																								
<b>Fit a Line to Data</b>	The table shows the miles per gallon that cars get during city and highway driving. Make a scatter plot of the data. Describe the correlation of the data. <table border="1" style="margin: 10px auto;"> <thead> <tr> <th>City</th> <td>15</td> <td>20</td> <td>14</td> <td>19</td> <td>18</td> <td>19</td> <td>19</td> <td>20</td> <td>24</td> <td>31</td> <td>29</td> </tr> <tr> <th>Highway</th> <td>22</td> <td>25</td> <td>21</td> <td>26</td> <td>27</td> <td>28</td> <td>27</td> <td>27</td> <td>35</td> <td>35</td> <td>38</td> </tr> </thead></table>	City	15	20	14	19	18	19	19	20	24	31	29	Highway	22	25	21	26	27	28	27	27	35	35	38
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Highway	22	25	21	26	27	28	27	27	35	35	38														
<b>Predict with Linear Models</b>	Use the data from Exercise 6 to find the equation of the best-fitting line. Then approximate the highway miles per gallon given that the city miles per gallon for a car is 22 miles per gallon.																								

**Home Involvement Activity**

**Directions** Find the amount your family spent on rent (or mortgage) payments last year and at least 3 years ago. Use the data to find a linear model for the amount  $y$  spent  $t$  years after 2000. Use the model to estimate how much your family can expect to spend on rent or mortgage payments next year.

about 29.5 mi/gal  
 7: *Sample answer:*  $y = 0.963x + 8.312$ ;



6: ; positive correlation

5: (a)  $y = \frac{3}{1}x - 3$  (b)  $y = -3x + 7$   
 4:  $-4x + 3y = -14$   
 3:  $y - 3 = -2(x + 2)$   
 2:  $y = -3x + 5$

Answers: 1:  $C = 20t + 75$ ; \$315