Name _____ Date _____ Class _____

LESSON 3-5

Problem Solving

Solving Inequalities With Variables on Both Sides

Write and solve an inequality for each situation.

1. Rosa has decided to sell pet rocks at an art fair for $5 each. She has paid $50 to rent a table at the fair and it costs her $2 to package each rock with a set of instructions. For what numbers of sales will Rosa make a profit?

_____

_____

2. Jamie has a job paying $25,000 and expects to receive a $1000 raise each year. Wei has a job paying $19,000 a year and expects a $1500 raise each year. For what span of time is Jamie making more money than Wei?

_____

_____

3. Sophia types 75 words per minute and is just starting to write a term paper. Patton already has 510 words written and types at a speed of 60 words per minute. For what numbers of minutes will Sophia have more words typed than Patton?

_____

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4. Keith is racing his little sister Pattie and has given her a 15 foot head start. She runs 5 ft/sec and he is chasing at 8 ft/sec. For how long can Pattie stay ahead of Keith?

_____

_____

The table below shows the population of four cities in 2004 and the amount of population change from 2003. Use this table to answer questions 5–6.

City	Population (2004)	Population Change (from 2003)
Lakewood, CO	141,301	−830
Vallejo, CA	118,349	−1155
Carrollton, TX	117,823	+1170
Manchester, NH	109,310	+261

5. If the trends in this table continue, after how many years y will the population of Manchester, NH, be more than the population of Vallejo, CA? Round your answer to the nearest tenth of a year.

A $y > 0.2$ **C** $y > 34.6$

B $y > 6.4$ **D** $y > 78.6$

6. If the trends in this table continue, for how long x will the population of Carrollton, TX be less than the population of Lakewood, CO? Round your answer to the nearest tenth of a year.

F $x < 11.7$ **H** $x < 20.1$

G $x < 14.6$ **J** $x < 28.3$