Math 1120F - Fall 2014
Worksheet 7 - §1.1, 12.5

Name(s): KEY

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Work with partners in groups of 2-4. **This is required.**

1. A total of \$10,000 is to be divided between Sean and George, with George to receive \$3,000 less than Sean. How much will each receive?

S = Sean's money
g = George's money

$S+g=10000 \Rightarrow S+S-3000=10000$
$g=S-3000 \qquad 2S=13000$
$S=6500$

∴ Sean will get \$6500 and George \$3500

2. Leigh is paid time-and-a-half for hours worked in excess of 40 hours, and double-time for hours worked on Sunday. If Leigh had gross weekly wages of \$456 and 50 hours worked, 4 of which were on Sunday, what is her regular hourly rate?

	Dollars/Hr	Hrs Worked	Money
Reg	x	40	$40x$
overtime	$1.5x$	6	$6(1.5x)$
Sunday	$2x$	4	$4(2x)$

$40x+9x+8x=456$
$57x=456$
$x=8$

∴ Leigh's wage is \$8/hr

3. Going into the final exam, which will count as two tests, brooke has test scores of 80, 83, 71, 61, and 95. What scores does Brooke need on the final in order to have an average score of 80?

Let x represent the score on the final.

$$\frac{80+83+71+61+95+x+x}{7}=80$$

$$\frac{390+2x}{7}=80$$

$390+2x=560$
$2x=170$
$x=85$

∴ Brooke needs at least an 85 on the final

* I actually think of this as how many points: 5 exams, 1 final (2 exams) is 700 points. Your graders are done similarly!

4. A college book store marks up the price that is pays the publisher for a book by 35%. If the selling price of a book is \$92.00, how much did the bookstore pay for the book?

Let p be the original price of the book.
Then $0.35p$ is the markup and

publisher price + markup = selling price

$$p + 0.35p = 92$$

$$1.35p = 92$$

$$p = 68.15$$

∴ the bookstore paid around \$68.15 for the book.

5. Set up, but do not solve, the following partial fraction decomposition:

$$\frac{2x^2+1}{(x+3)^2(x^2+2x-1)}$$

sum of multiplicities = 3
⇒ 3 fractions

$$\frac{2x^2+1}{(x+3)^2(x^2+2x-1)} = \frac{A}{x+3} + \frac{B}{(x+3)^2} + \frac{Cx+D}{x^2+2x-1}$$