ADULT LEARNING ACADEMY

PRE-ALGEBRA WORKBOOK

UNIT 5: PERCENTS

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MoHealthWINs

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Adult Learning Academy
Pre-Algebra Workbook

UNIT 5: PERCENTAGES

LEARNING OBJECTIVES

1. **Understanding Percentages:**
   - ☐ Recognize that percents express parts per 100
   - ☐ Represent percentages as parts of a whole using area models
2. **Converting Percents:**
   - ☐ Represent numbers as decimals, percentages, and fractions
   - ☐ Convert decimals to percents, and percents to decimals
   - ☐ Convert fractions to percents, and percents to fractions; write fractions in lowest terms
   - ☐ Order sets of numeric expressions that include decimals, percents, and fractions
3. **Solving Percent Problems:**
   - ☐ Calculate percentages
   - ☐ Identify the amount (part), base (whole), and percent in percentage problems; identify known and unknown information
   - ☐ Use proportions to solve for unknowns in percent problems
   - ☐ Perform calculations involving percentage increases and decreases
4. **Word Problems:**
   - ☐ Solve word problems involving percents, including simple interest problems and other applications to the healthcare industry

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UNIT 5 VIDEO & EXERCISE LIST

Topic	Website	Videos	Exercises
Understanding Percent	www.khanacademy.org	Describing the Meaning of Percent	Worksheet: Coloring Decimals
		Describing the Meaning of Percent 2	
Converting Percents		Representing # as Dec, %, and Fraction	Converting Percents to Decimals
		Converting Decimals to Percents Ex 1	Converting Decimals to Percents
		Converting Decimals to Percents Ex 2	
		Representing a # as Dec, %, Fraction 2	
		Ordering Numeric Expressions	
Solving Percent Problems	www.khanacademy.org	Identifying Percent Amount and Base	Discount Tax and Tip Word Probs
		Growing by a Percentage	Markup, Commission Word Probs
		Solving Percent Problems	
		Solving Percent Problems 2	
		Solving Percent Problems 3	
Use Proportions to solve %	http://www.youtube.com/watch?v=yl0Rb6T09VM		
Use Equation to solve %	http://www.youtube.com/watch?v=LkTYkHbUiU4		
Unit 5 Review Powerpoint	www.stlcc.edu	Unit 5 Flashcard Powerpoint on Blackboard	
Compass Practice	http://www.hostos.cuny.edu/oaa/compass/pre-alg_prac12.htm		Percent

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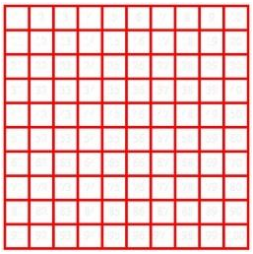
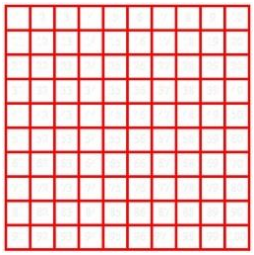
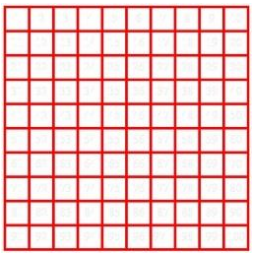
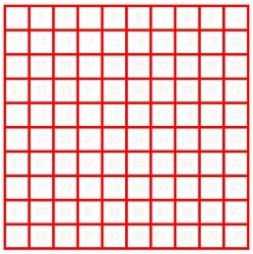
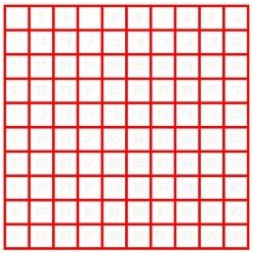
	1%		
		1/20	
			0.2
		1/4	
	50%		

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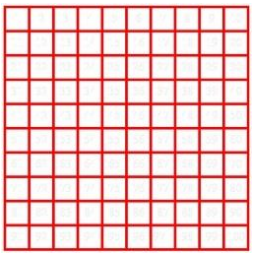
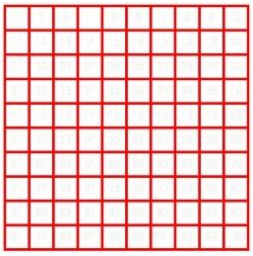
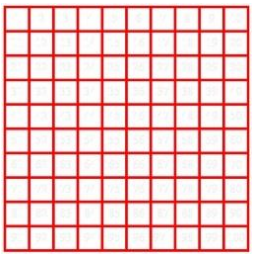
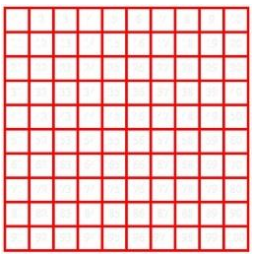
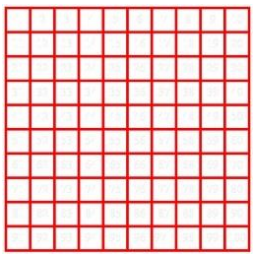
		3/4	
			0.99
	100%		
	110%		
	0.5%		

Try to find the matches by doing the calculations in your head!
10% of 250
15% of 200
5% of 300
1% of 2000
20% of 150
100% of 25
200% of 7.5
.5% of 4000

1. Vicky got a 10% raise at the end of her first year on the job. She got a 15% raise at the end of her second year. Her total raise was 25% of her original salary.

2. This month, Sasha paid 45% of her Mastercard bill of $620 and 50% of her Visa bill of $380. All-together, she paid 95% of her credit card bills this month.

3. George spent 25% of his salary on food and 40% on housing. Therefore, he spent 65% of his salary on food and housing.

4. Among Forest Park students, 65% work part-time, 25% work full time, and 15% are not currently employed.

5. In Clean City, the fine for various polluting activities is a certain percentage of one's monthly income. The fine for smoking is 40%, for driving a gas-guzzling car is 50%, and for littering is 30%. Mr. Schmutz committed all three polluting crimes in one day and was fined 120% of his salary.

6. A loaf of bread is 97% fat free. If I only eat 97% of the bread, I won't consume any fat.

7. 25%, or one out of every four eggs, contains salmonella. If I only use three eggs in my omelet, I'll be safe.

8. A low-fat brownie recipe is 50% fat free. If I double the recipe, the result will be 100% fat free.

9. A sweater is on sale at 75% off. I also have a 25% coupon. Thus, the sweater is free.

I. Convert the following decimals to percents.

a) .75 _____

b) .9 _____

c) .07 _____

d) 3.98 _____

e) .0085 _____

f) .902 _____

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II. Convert the following percents to decimals. Remember 100% = 1

a) 25% _____

b) 3% _____

c) 150% _____

d) 700% _____

e) .08% _____

f) 9 ½ % _____

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III. Solve.

a) 100% of 60 _____

b) 50% of 60 _____

c) 25% of 60 _____

d) 10% of 60 _____

e) 20% of 60 _____

f) 15% of 60 _____

g) 150% of 60 _____

h) 200% of 60 _____

i) 300% of 60 _____

j) 1000% of 60 _____

IV. Use proportions to solve the following percent problems. Show your work.

a) What is 25% of 300?

b) What is 70% of 20?

c) What is 350% of 80?

d) 100 is what percent of 400?

e) 18 is what percent of 150?

f) .5 is what percent of 4?

g) 50% of 224 is what number?

h) 12% of 3 is what number?

i) 225% of 50 is what number?

V. Use proportions to solve the following percent problems.

a) Twenty grams of drug are contained in 50 mL of solution. What is the percent strength of this solution?

Set up: $\frac{20\ g}{50\ mL} = \frac{x\ g}{100 mL}$ Solve for x.

b) Ten grams of drug are contained in 90 mL of solution. What is the percent strength of this solution? (round to the nearest tenth)

c) Three grams of drug are contained in 10 mL of solution. What is the percent strength of this solution?

d) If a ratio of 5:25 is given for a solution, what percent strength is this solution?

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VI. Solve the following percent problems involving discounts.

a) What is the net price of a surgical instrument that has an original price of $300 with a discount of 25%?

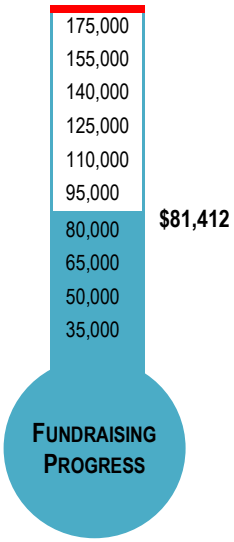
b) The price for one case of medicine is $75.00**.** Your pharmacy is ordering three cases and will receive a 12% discount. What is the amount of the discount? What is the net cost for all three cases of the medicine?

c) The total amount for a hospital bill is $7,500.00. The patient will have to pay $500 and then 20% of the remaining bill. How much of the bill will the patient have to pay?

d) If a medical supply company gave a 20% discount on walkers, and the NET price (after the discount) was $400.00, what was the price of the walker **before** the discount was taken?

VII. Graphics Practice:

a)



What percent of its goal has this medical research fundraiser reached?

What percent remains to be raised?

b) The hospital in the graph below has 70 nurses. How many of each type are there?

Patient Care Technician:

Certified Nurse Assistant:

Licensed Practical Nurse:

Registered Nurse: