

Chapter 6 – Percents

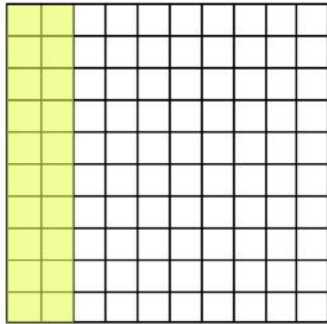
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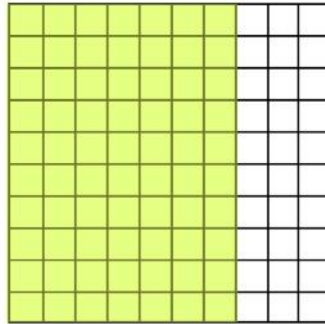
Shading Fractions, Decimals, and Percents

Name _____

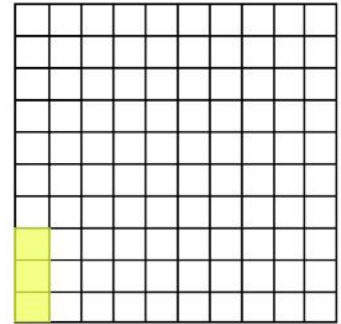
In each 100-square below, create a shaded region that represents the given fraction, decimal, or percent. Then fill in the remaining blanks, so that the percent, fraction, and decimal are equivalent. On this worksheet, you don't need to reduce fractions. The first one is done for you.



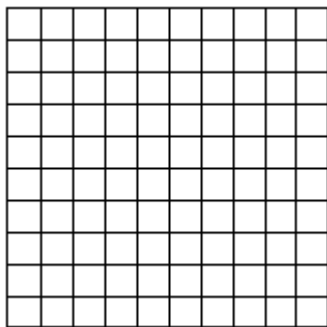
$$20\% = \frac{20}{100} = 0.2$$



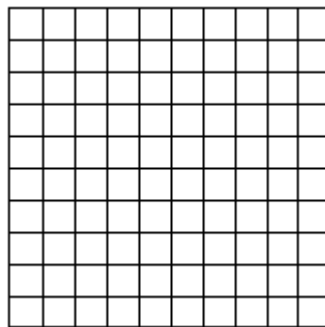
$$\square\% = \frac{\square}{\square} = \square$$



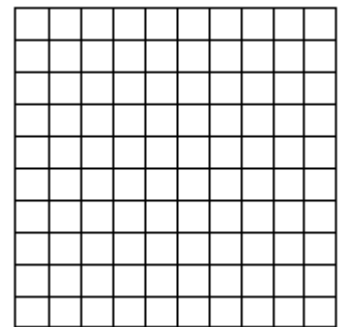
$$\square\% = \frac{\square}{\square} = \square$$



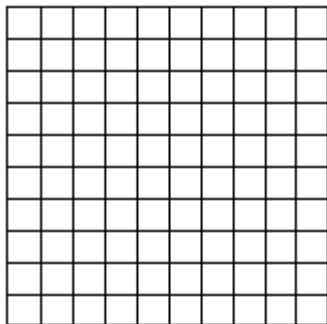
$$32\% = \frac{\square}{\square} = \square$$



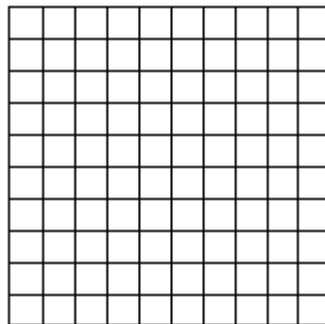
$$40\% = \frac{\square}{\square} = \square$$



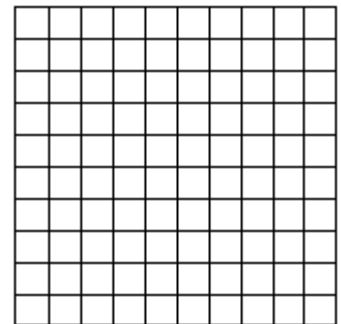
$$61\% = \frac{\square}{\square} = \square$$



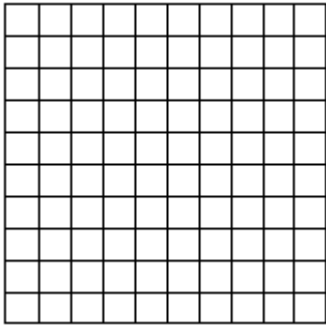
$$\square\% = \frac{\square}{\square} = 0.17$$



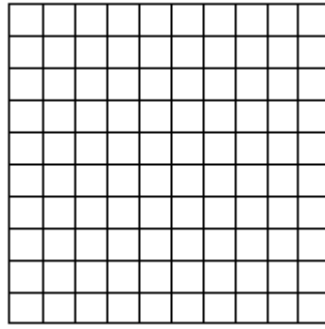
$$\square\% = \frac{\square}{\square} = 0.05$$



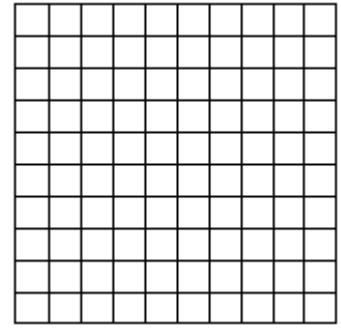
$$\square\% = \frac{\square}{\square} = 0.3$$



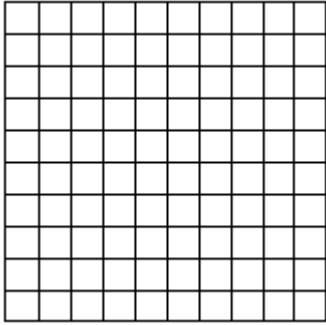
$$\square\% = \frac{23}{100} = \square$$



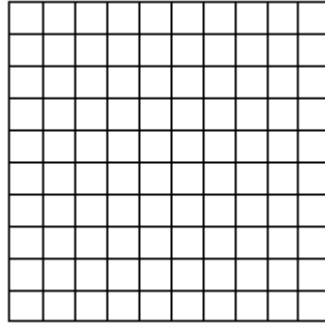
$$\square\% = \frac{90}{100} = \square$$



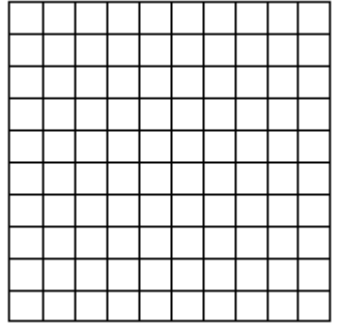
$$\square\% = \frac{5}{100} = \square$$



$$\square\% = \frac{1}{10} = \square$$



$$\square\% = \frac{3}{20} = \square$$



$$\square\% = \frac{1}{3} = \square$$

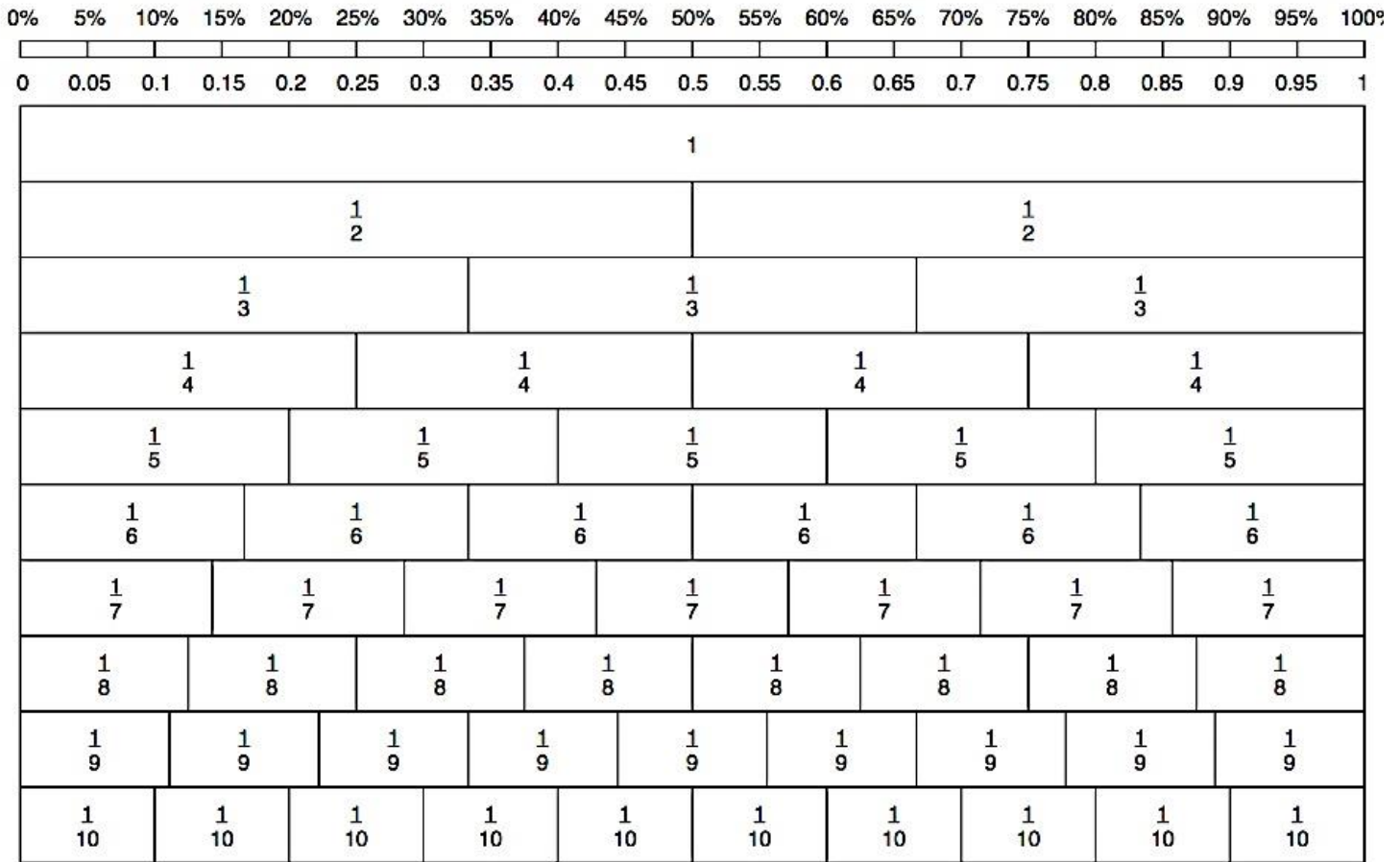
Complete each row so that the fraction, decimal, and percent are equivalent. The first one is done for you.

Fraction	Decimal	Percent
$\frac{1}{2}$	0.5	50%
$\frac{1}{3}$		
$\frac{1}{4}$		
$\frac{1}{5}$		
$\frac{1}{6}$		
$\frac{1}{8}$		
$\frac{1}{10}$		

Fraction	Decimal	Percent
$\frac{1}{100}$		
1		
	0.7	
	0.07	
		75%
		66. $\bar{6}$ %
		125%

Comparing Fractions, Decimals and Percents

Name _____



1. Using the chart above, can you name a fraction which is equal to the decimal 0.9?
2. Using the chart above, can you name what percent is equal to the fraction $\frac{4}{5}$?
3. Using the chart above, can you name a fraction which is close to the decimal 0.28?
4. Using the chart above, can you estimate what percent the fraction $\frac{4}{9}$ is?
5. Which is bigger: $\frac{3}{8}$ or 42%
6. Which is bigger: $\frac{6}{7}$ or 70%

Fractions, Decimals and Percents Playing Cards

Purpose

The purpose of this activity is to help students learn the conversions between fractions, decimals and percents in a kinesthetic way by playing a game. Students should work in groups of 2 to 4.

What you need

Game Cards—There is a printed set of these cards at all PCC campuses. Also, see the appendix for a set you can print yourself.

Possible Games

In all of these games, a “set” is a group of equivalent percent, fraction, and decimal cards. For example, 25%, $\frac{1}{4}$, and 0.25 is a set.

1. Matching Game

- a. Version #1 – Place all of the cards face up on the table. The first student matches up a set. Then, the second student looks for a set, etc. Keep going until all of the sets are matched.
- b. Version #2 – Hand one student all of the percentages, another student all of the decimals, and the last student all of the fractions. The first student calls out a percentage. The other students give her the equivalent decimal and fraction. The next time, the student with the decimals begins. Finally, the student with the fractions begins. Keep going until all of the sets are matched.

2. Slap – Deal out all of the cards. Each person lays down a card. Whichever card is the highest wins that round. If there is a tie between the two highest cards, whoever slaps the cards first wins that round. Keep going until one player has all of the cards.

3. Go Fish – Deal out 5 cards to each player. The rest of the cards go in a pile in the middle. To start, the players look at their cards and place any sets they have on the table. The first player asks another player for a card to make a set. “Do you have anything equivalent to 25%?” If the other player has the card(s), they give the card(s) to the first player and the first player asks again. If the other player does not have the card, she says, “Go Fish” and the first player takes a card from the center pile. Then, it is the next player’s turn. If at any time, a player runs out of cards, then they take three cards from the center pile. The game continues until all of the sets are made. The player with most sets wins.

Solving Percent Problems

Name _____

1. How do these differ? Discuss with your neighbor.
 - a. What is 8% of 300?

- b. 8% of what is 300?

2. How do these differ? Discuss with your neighbor.
 - a. 18 is what percent of 30?

- b. What percent of 30 is 18?

Translate the following to a percent equation or percent proportion. Then solve.

3. What is 32% of 51.2?

4. 9 is 40% of what number?

5. 50 is what percent of 90?

6. The PCC Foundation has raised \$225,000 for scholarships, with a goal of raising \$500,000. What percent of the goal has been raised?

7. The enlarge feature on a copier is set at 150%, and a 2.5-inch side picture is to be copied. What width will the width of the enlarged picture be?

Percent Problem Puzzles

Name _____

Here is (the start of) a student's answer.

What was the question?

Example: $x = 0.40 \cdot 5$

What is 40% of 5?

1. $5 = 0.13 \cdot x$

2. $\frac{15}{16} = x$

3. $120 \cdot 0.02 = x$

4. $\frac{x}{13.5} = \frac{43}{100}$

5. $\frac{45}{x} = \frac{60}{100}$

6. $\frac{3}{7} = \frac{x}{100}$

7. $0.04 \cdot 50 = x$

8. $x = 12 \cdot 0.2$

Applications of Percent

Name _____

1. Round each dollar amount to the nearest cent.

a. \$168.257

b. \$57.234

c. \$3.396

2. If you purchase something in Washington State, you have to pay a statewide sales tax of 6.5%. Find the sales tax on a purchase of \$33.60.

3. Some localities add on a local tax to the statewide sales tax. Seattle adds on a local tax of 3.1% to the statewide sales tax of 6.5%. Find the total sales tax on a purchase of \$45 if you purchase it in Seattle.

4. If a shirt costs \$25 and the employee discount is \$1.25, what percentage is the employee discount?

5. If a house is worth \$250,000 and the property tax is \$3,750, what is the property tax rate?

6. A book normally sells for \$16.50 and is on sale at 40% off. What is the sale price of the book?

7. The tuition at PCC increased from \$1267 per term to \$1291 per term.

a. What is the increase in tuition?

b. What is the percent of increase in tuition?

8. A company decreased their workforce from 1000 to 950 employees.

a. What is the decrease in the workforce?

b. What is the percent of decrease in the workforce?

9. The boss says, "Remember last year when business was bad and I cut everyone's salary by 10%? Well, we have had a better year and I am going to raise your pay by 10%!"
Will the employees' salaries be the same as they were before the salary cuts? Show your reasoning.

10. Use the information on the paycheck stub to find the tax rate for the federal withholding, worker's compensation, Medicare, and Social Security taxes that were deducted from the gross pay.

Check Date: January 12, 2012	Employee # 460927
Gross Pay	\$ 520.00
Taxes	
Federal Tax	\$ 46.80
Worker's Compensation	\$ 16.90
Medicare	\$ 7.80
Social Security	\$ 38.48
Net Pay	\$ 410.02

Fractions, Decimals and Percents Time Activity

Name _____

How did you spend your day yesterday? Complete the chart. Write down what activities you did yesterday and how many hours you spent on each activity. Then convert the hours to a fraction, decimal, and percent.

Activity	Hours	Fraction	Decimal	Percent
Sleeping				
Eating				
Studying				
Other				
Total	24	1	1.00	100%

Mental Math Percents – Discounts and Tipping

Name _____

Calculate the sale prices without using a calculator by first finding 10% of the original price.

Item	10% off	Discount	Sale Price
\$30 shirt 10% off	\$3	\$3	\$27
\$120 food processor 20% off	\$12	\$24	
\$65 jeans 15% off			
\$19 skirt 30% off			
\$80 blender 35% off			

Calculate a 15% tip and a 20% tip for each restaurant bill without using a calculator by first finding 10%.

Restaurant Bill	10% tip	15% tip	20% tip
\$20	\$2	\$3	\$4
\$60			
\$45			
\$16.80			
\$84.21			