

## Lesson 8.2b (F.11)

Objectives: To solve problems involving percents.

### Application

There are 3 basic types of percent problems.

All 3 are based on the notion that:

“a **P**ercent of a whole **Q**uantity is some **N**umber”

$$p \cdot q = n$$

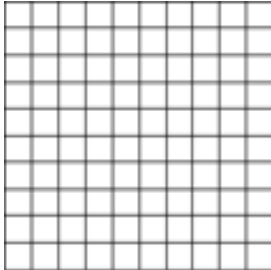
1. Find the percent of a number. (What is 30% of 200? Find \_\_\_\_\_ )
2. Find what percent one number is of another. (What percent of 200 is 60? Find \_\_\_\_\_ )
3. Find a number when a percent of that number is known. (30% of how much is 60? Find \_\_\_\_\_ )

Examples:

1. Gail wants to buy a car that costs \$15,000. In order to obtain a loan she must have a 20% down payment.

What is the amount of the down payment?

- a. Work with a hundred grid.

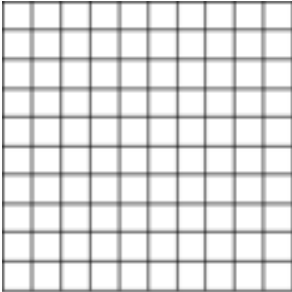


- b. Work with a proportion.

- c. Work using the equation  $pq = r$

2. If Steve has 30 correct answers on a 40 question test, what percent of his answers are correct?

a.

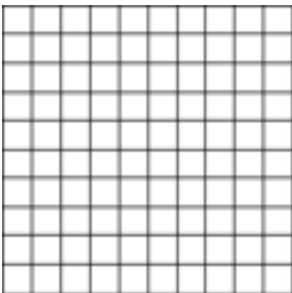


b.

c.

3. Tom takes home 80% of his weekly pay. If Tom takes home \$480, what is his weekly pay?

a.



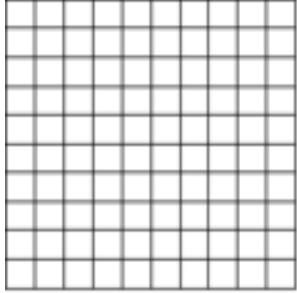
b.

c.

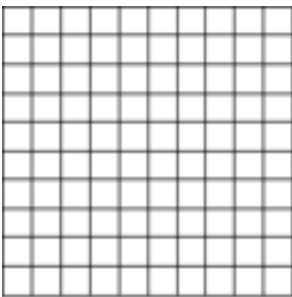
Now let's choose our method

4. Kelly bought a bicycle and a year later sold it for 20% less than what she paid for it. If she sold the bike for \$144, what did she pay for it?

a.



5. A men's store advertised a suit for 10% off for a savings of \$15. Later, the manager marked the suit at 30% off the original price. What is the amount of the current discount?



6. The price of a suit that sold for \$200 was reduced by 25%. By what percent must the price of the suit be increased to bring the price back to \$200?
7. Mr. Jones has received a 10% raise in salary in each of the last 2 years. If his annual salary is \$96,800, what was his salary 2 years ago?

### Mental Math with Percents

1. Using fraction equivalents.

%	25%	50%	75%	$33\frac{1}{3}\%$	$66\frac{2}{3}\%$	10%	1%
Fraction equivalent	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{3}{4}$	$\frac{1}{3}$	$\frac{2}{3}$	$\frac{1}{10}$	$\frac{1}{100}$

We can use these equivalents as follows:

$$1. \quad 25\% \text{ of } 80 \text{ is } = \frac{1}{4} (80) = 20$$

$$2. \quad 33\frac{1}{3}\% \text{ of } 66 = \frac{1}{3} (66) = 22$$

2. Using a known percent.

1. Find 60% of 90

$$50\% \text{ of } 90 = 45$$

$$\text{and } 10\% \text{ of } 90 = 9$$

$$\text{Therefore } 60\% \text{ of } 90 = 45 + 9 = 54$$

### **ESTIMATING WITH PERCENTS**

We use estimations to determine whether answers are reasonable

1. 26% of 88      2. 42% of 50      3. 34% of 96

4. Laura wants to buy a blouse originally priced at \$26.50 but now on sale at 40% off. She has \$17.00 in her wallet and wonders if she has enough cash. How can she mentally find out?

Class work Activity Model for Introducing Percents  
Homework Course Compass Section 8.2 and page #A 5,  
10, 23, 27, 29 page 501 #B 9, 10, 11, 13, 14, 17, 18