

NAME: _____

Math 7.1, Periods 1 and 2

Mr. Rogove

Date: _____

1, 100
2, 50
4, 25
5, 20
10, 10

LEARNING OBJECTIVE: We will use double number lines and algebraic methods to find 100 percent given another percent. (G7M4L5)

CONCEPT DEVELOPMENT:

Fill this in, and keep this handy!

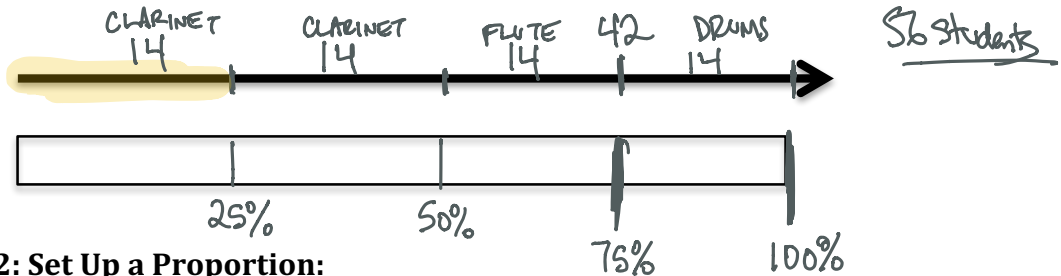
Factors of 100	Multiples of the Factors of 100	Number of Multiples
100	100	1
50	50, 100	2
25	25, 50, 75, 100	4
20	20, 40, 60, 80, 100	5
10	10, 20, 30, 40, 50, 60, 70, 80, 90, 100	10
5	5, 10, 15, 20, ..., 95, 100	20
4	4, 8, 12, 16, ..., 96, 100	25
2	2, 4, 6, 8, ..., 96, 98, 100	50
1	1, 2, 3, 4, ..., 99, 100	100

The factors of 100 represent all of the different ways we can break 100% into equal sized intervals. This is important when working with double number lines.

Finding 100% When Given Another Percent (Two Methods)

Example: The 42 students who play wind instruments represent 75% of the students who are in the band. How many students are in the band?

Method 1: Modified Double Number Line:



Method 2: Set Up a Proportion:

$$\frac{42}{x} = \frac{75}{100}$$

$$\frac{\text{Part}}{\text{Whole}} = \frac{\text{Percent}}{100}$$

CROSS-MULTIPLY!

$$75x = 42 \cdot 100$$

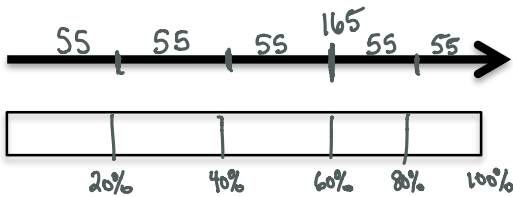
$$1 \quad \frac{75x = 4200}{75} \quad x = 56$$

GUIDED PRACTICE:

Steps for Finding 100% Using a Modified Double Number Line

1. Read the question carefully and create a double number line.
2. Place the percent given on the top number line, and then fill in other values based on the multiples of the factors of 100.
3. Place the given value in the bottom tape diagram.
4. Use the multiples of the factors of 100 to find out 100% of the number.
5. Interpret your answer.

Wheel Works sold a record number of tires last month. One salesperson, Mari, sold 165 tires, which was 60% of the tires sold in the month. What was the record number of tires sold?

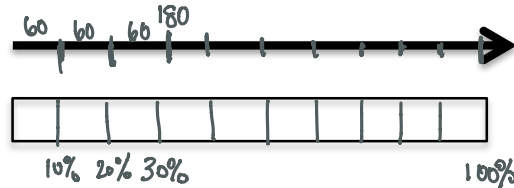


$$165 \div 3 = 55$$

$$55 \times 5 = 275$$

Wheelworks sold 275 tires last month

Mike Trout had a batting average last year of 0.300, which means that he got a hit 30% of the time he was up to bat. If he got 180 hits, how many times did he bat?

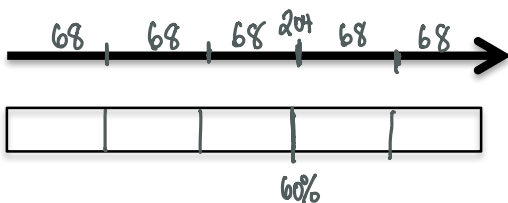


$$180 \div 3 = 60$$

$$60 \times 10 = 600$$

Mike Trout had 600 ABs.

Katya has already read 40% of her book, but she still needs to read 204 pages to complete it. How many pages long is the book?

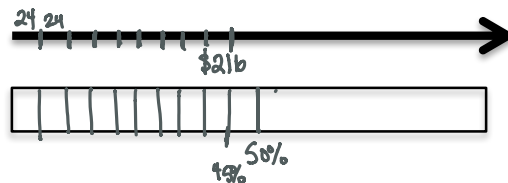


$$204 \div 3 = 68$$

$$68 \times 5 = 340 \text{ pages}$$

Katya's book is 340 pages

Victor has saved 45% of the money he needs to get a new iPhone 7Plus. If he has saved \$216, how much does the new iPhone cost him?

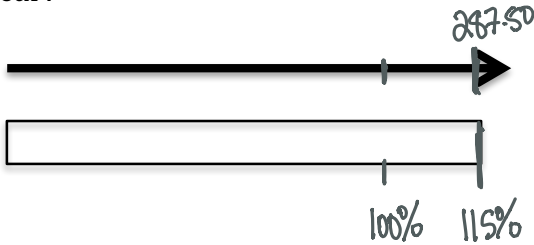


$$216 \div 9 = 24$$

$$24 \times 20 = \$480$$

The new iPhone cost \$480

Emma got a 15% raise in her salary this year. She now makes \$287.50 each week. How much did she make last year?

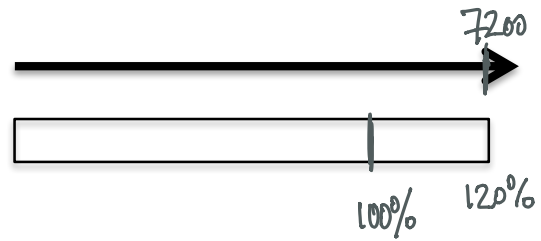


$$287.50 \div 1.15 = \$250.00$$

$$\$250.00 \times 1.15 = \$287.50$$

Emma made \$250/week
last year

Jack currently has 7,200 points in his Fantasy Basketball league, which is 20% more than Adrian. How many points does Adrian have?

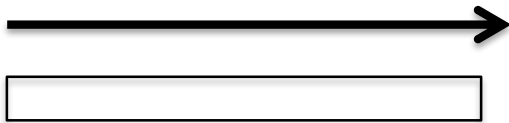


$$7200 \div 1.2 = 6000$$

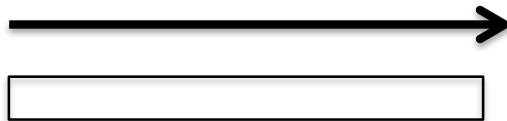
$$6000 \times 1.2 = 7200$$

Adrian has 6000
points

Quincy has driven 276 miles already on her road trip, but still has 70% of the trip left to go. How many more miles does Quincy have to get to her destination?



Scott used \$140 of his savings to go on a class trip. He still has 65% of his savings left. How much did he have left over after spending the \$140 for the class trip?



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INDEPENDENT PRACTICE:

John collected 360 cans and bottles to recycle. This was 40% of the amount that Isaiah collected. How many cans and bottles did Isaiah collect?

A snowmobile manufacturer claims that its newest model is 15% lighter than last year's model. If this year's model is 799 pounds, how much did last year's model weigh?

A color of paint includes both green and yellow. Sara wants to lighten the color by increasing the amount of yellow paint by 30%. If the new mixture contains 3.9 liters of yellow paint, how many liters was in the previous mixture?

Student enrollment at City College of San Francisco has dropped to 5,040, which is a 20% decrease from last year. How many students were enrolled last year?

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ACTIVATING PRIOR KNOWLEDGE:

We can identify all of the factors of 100 with ease.'

CLOSURE:

A roast has been cooking in the smoker for $2\frac{1}{2}$ hours, but is only 40% of the way done. How long will it take for the roast to be completely done?

TEACHER NOTES:

This is lesson 5 from Mod 4, grade 7. Double number line is slick....requires some development.

Give a Problem of the Week for HW?