Lesson 20: Percentages and Double Number Lines

Let's use double number lines to represent percentages.

20.1: Fundraising Goal

Each of three friends—Lin, Jada, and Andre—had the goal of raising $40. How much money did each person raise? Be prepared to explain your reasoning.

1. Lin raised 100% of her goal.

2. Jada raised 50% of her goal.

3. Andre raised 150% of his goal.

20.2: Three-Day Biking Trip

Elena biked 8 miles on Saturday. Use the double number line to answer the questions. Be prepared to explain your reasoning.
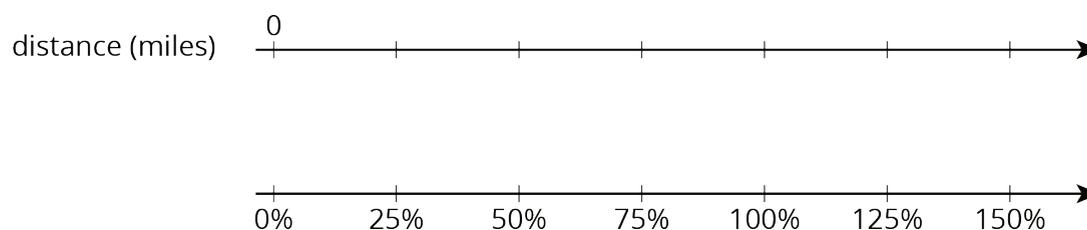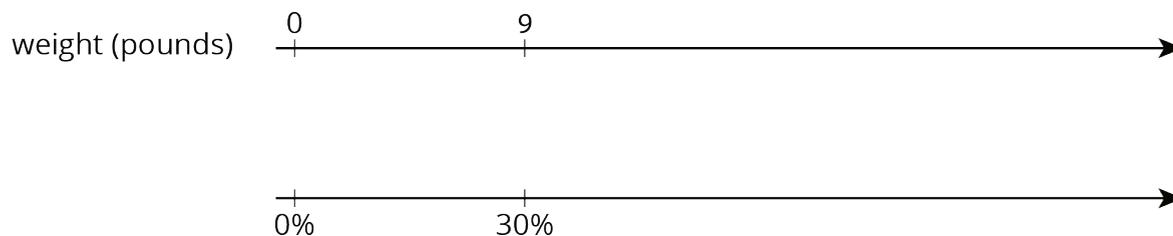

1. What is 100% of her Saturday distance?

2. On Sunday, she biked 75% of her Saturday distance. How far was that?

3. On Monday, she biked 125% of her Saturday distance. How far was that?

20.3: Puppies Grow Up

1. Jada has a new puppy that weighs 9 pounds. The vet says that the puppy is now at about 20% of its adult weight. What will be the adult weight of the puppy?

weight (pounds)

```
    0       9
    +-------+-----------------------------------→


    +-------+-----------------------------------→
    0%      20%
```
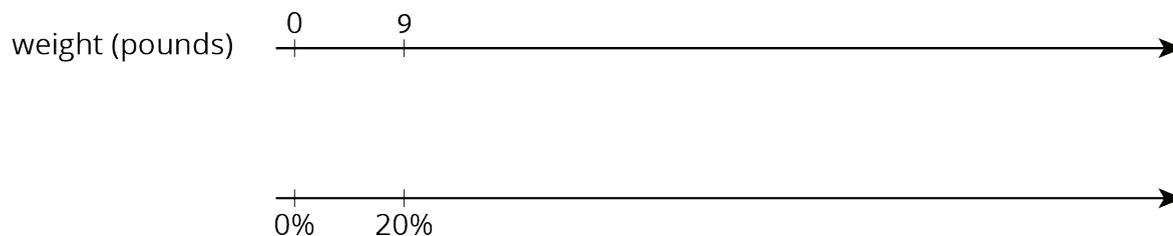
2. Andre also has a puppy that weighs 9 pounds. The vet says that this puppy is now at about 30% of its adult weight. What will be the adult weight of Andre's puppy?

weight (pounds)

```
    0               9
    +---------------+---------------------------→


    +---------------+---------------------------→
    0%              30%
```

3. What is the same about Jada and Andre's puppies? What is different?

Are you ready for more?

A loaf of bread costs $2.50 today. The same size loaf cost 20 cents in 1955.

1. What percentage of today's price did someone in 1955 pay for bread?

2. A job pays $10.00 an hour today. If the same percentage applies to income as well, how much would that job have paid in 1955?

Accelerated 6 Unit 2
Lesson 20

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Lesson 20 Summary

We can use a double number line to solve problems about percentages. For example, what is 30% of 50 pounds? We can draw a double number line like this:

weight (pounds)

```
0        ?              50
```

```
0%      30%          100%
```
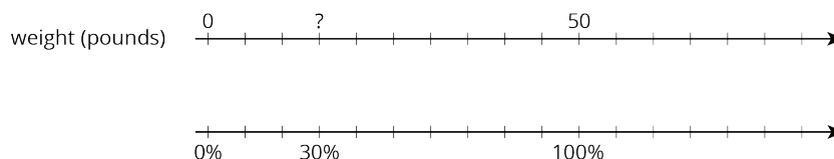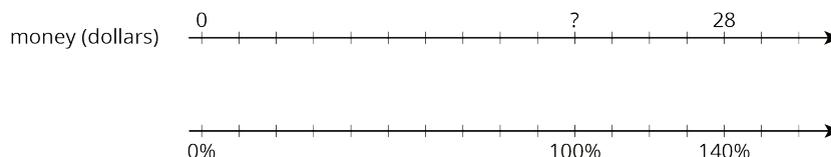
We divide the distance between 0% and 100% and that between 0 and 50 pounds into ten equal parts. We label the tick marks on the top line by counting by 5s ($50 \div 10 = 5$) and on the bottom line counting by 10% ($100 \div 10 = 10$). We can then see that 30% of 50 pounds is 15 pounds.

We can also use a table to solve this problem.

weight (pounds)	percentage
50	100
5	10
15	30

$\cdot \frac{1}{10}$ $\cdot 3$ $\cdot \frac{1}{10}$ $\cdot 3$

Suppose we know that 140% of an amount is $28. What is 100% of that amount? Let's use a double number line to find out.

money (dollars)

```
0                    ?      28
```

```
0%                  100%   140%
```

We divide the distance between 0% and 140% and that between $0 and $28 into fourteen equal intervals. We label the tick marks on the top line by counting by 2s and on the bottom line counting by 10%. We would then see that 100% is $20.

Or we can use a table as shown.

money (dollars)	percentage
28	140
2	10
20	100

$\cdot \frac{1}{14}$ $\cdot 10$ $\cdot \frac{1}{14}$ $\cdot 10$