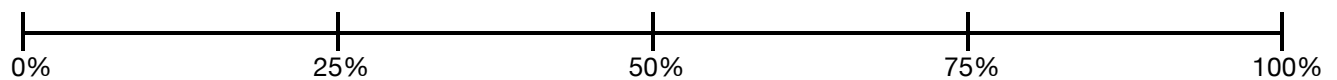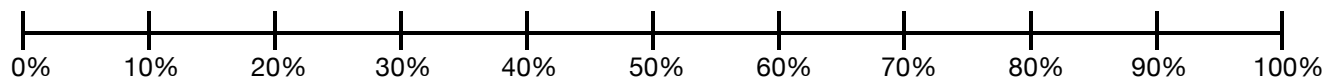After watching the *Percent Problems* video, make sense of the mathematics by taking a closer look at the problem situations and solutions. Use the questions and comments in bold to help you solve each problem with a percent bar.
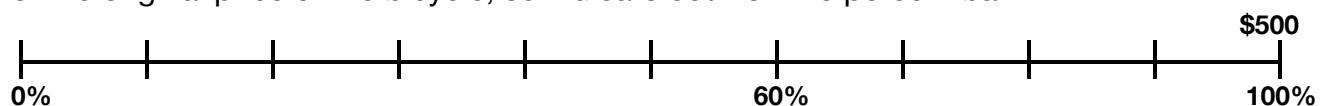
A percent bar is a model used to represent the relationships among the numbers in a percent problem. The following percent bars start at 0% and end at 100%. The first bar is divided into 10 equal parts and shows 10% increments. The second bar is divided into four equal parts and shows 25% increments.

```
|----|----|----|----|----|----|----|----|----|----|
0%  10%  20%  30%  40%  50%  60%  70%  80%  90% 100%
```

```
|---------|---------|---------|---------|
0%       25%       50%       75%      100%
```

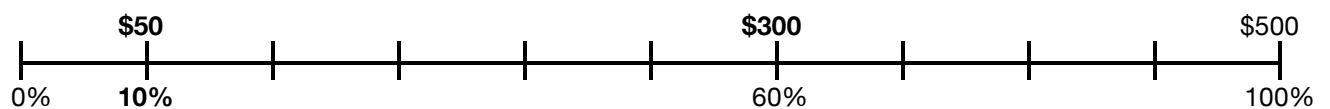**Draw a similar percent bar to help you solve each of the following problems.**

Problem 1: The original price of a bicycle was $500. The sale price is 60% of the original price. What is the sale price?

First draw a percent bar and represent the information from the problem. The original price of the bicycle was $500, so $500 corresponds to 100%. You need to determine 60% of the original price of the bicycle, so indicate 60% on the percent bar.

```
                                                        $500
|----|----|----|----|----|----|----|----|----|----|
0%                                 60%              100%
```

How can you use this percent bar to solve the problem in a way that makes sense?
One way to solve this problem is to compute 10% of $500 and indicate that on the percent bar. Ten percent of $500 is $50 (0.10 x $500 = $50). Knowing 10% of the original price can help you determine 60% of the original price. Sixty percent is 6 times as big as 10%, so the amount that corresponds to 60% is 6 times $50, or $300.
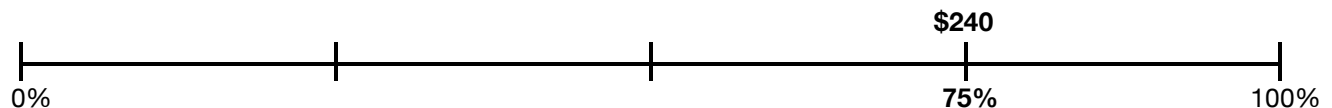
```
     $50                        $300                 $500
|----|----|----|----|----|----|----|----|----|----|
0%   10%                         60%                100%
```

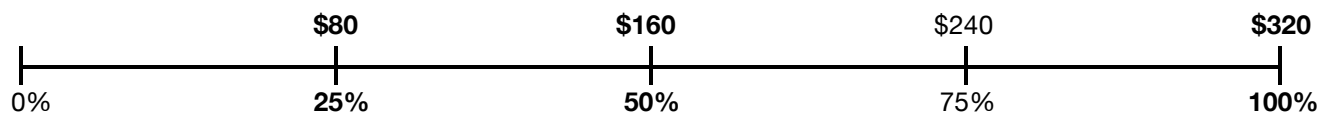**How do you interpret the answer?** The sale price of the bicycle is $300.

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Problem 2: The sale price of a bicycle is $240 which is 75% of the original price. What was the original price?

Draw a percent bar and represent the information from the problem. You know that 75% of the original price is $240, so place $240 above 75% on the percent bar.

$240

| 0% | | | 75% | 100% |

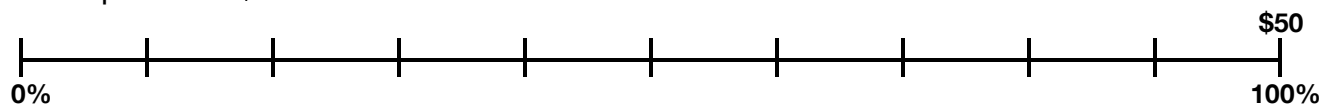**How can you use this percent bar to solve the problem in a way that makes sense?**
75% is three times as big as 25%, so 25% is one third of 75%. Therefore, the price that corresponds to 25% must be one third of $240, or $80. Fifty percent is twice as big as 25%, so it corresponds to $160 (2 x $80 = $160). Four times 25% is 100% and 4 times $80 is $320, so $320 corresponds to 100%.

$80	$160	$240	$320
0%	25%	50%	75%	100%

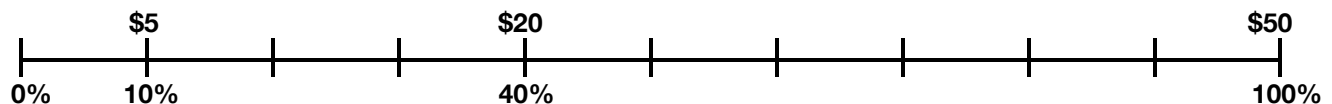**How do you interpret the answer?** The original price of the bicycle was $320.

Problem 3: I bought a $50 jersey for $20. What percent of the original price did I pay?

Draw a percent bar and represent the information from the problem. The original price of the jersey was $50, so $50 corresponds to 100%. You need to determine what percent corresponds to $20.

$50

| 0% | 100% |

How can you use this percent bar to solve the problem in a way that makes sense?
Ten percent of $50 is $5. Place 10% and $5 on the percent bar. The $20 sale price is 4 times larger than $5, so it corresponds to 40% (4 x 10% = 40%).

$5 $20 $50

| 0% | 10% | 40% | 100% |

How do you interpret the answer? The sale price of the jersey is 40% of the original price.

You can solve a percent problem with a number sense approach using a percent bar or by using a mathematical procedure. The percent bar helps represent the relationship between the numbers and helps you recognize if your solution makes sense.

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