What Percentage... ?

What percentage of the height of a 15-ft tree is a 3-ft sapling?	A choir has 22 women and 18 men. **Find what percentage** of the choir's members are men.	One pair of jeans costs $25 and another costs $28. **How many percent** is the price of the cheaper jeans of the price of the more expensive jeans?

Look carefully at the questions above. Notice that the problems *don't* tell you the percentage; in other words, there is *no* number in the problem written as *x*%. Instead, they ask *you* to find it!

Questions with "What percentage…?" or "How many percent…?"

Asking "What percentage?" or "How many percent?" is the same as asking "How many hundredth parts?"

We can solve these questions in a two-part process:

1. First find out the part that is being asked for *as a fraction*. The denominator probably will not be 100.

2. Convert that fraction to a decimal. Then you can easily convert the decimal to a percentage!

Example 1. A choir has 22 women and 18 men. Find what percentage of the choir's members are men.

1. Find *what part* (fraction) of the choir's members are men. That is 18/40, or 9/20.

2. Write 9/20 as a percent. You can use equivalent fractions: $9/20 = 45/100 = 45\%$.

Example 2. One pair of jeans costs $25 and another costs $28.
How many percent is the price of the cheaper jeans of the price of the more expensive jeans?

1. Write *what part* (fraction) the cheaper price is of the more expensive price. The answer is 25/28.

2. Write 25/28 as a percentage. A calculator gives $25/28 = 0.8928 \ldots$
   Rounded to the nearest whole percent, that is 89%.

1. **a.** What percentage of a 15-ft tree is a little 3-ft sapling?
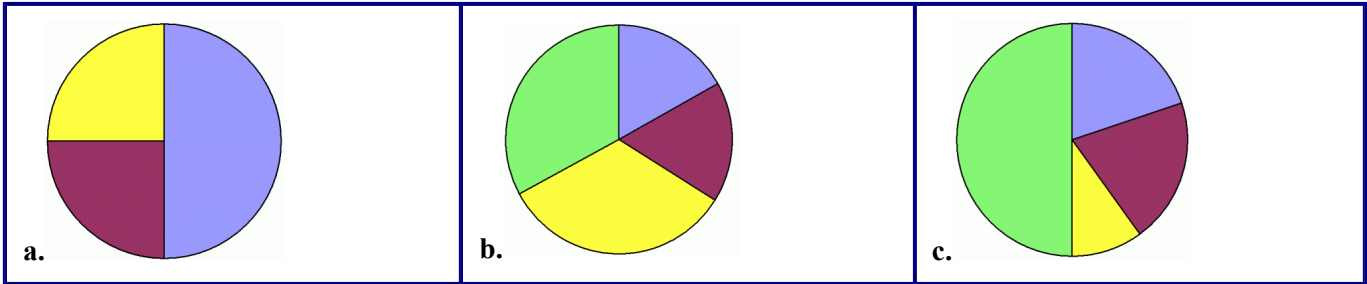
  b. How many percent is $12 of $16?

2. Find how many percent the smaller object's height is of the taller object's height.

6 m 8 m	300 cm 120 cm	4 m 5 m
a.	**b.**	**c.**

Sample worksheet from
www.mathmammoth.com
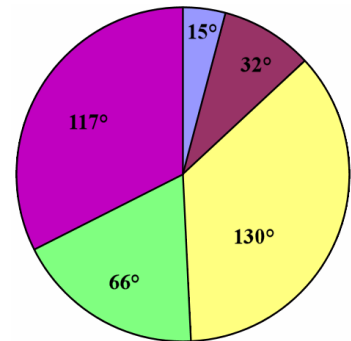11
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3. A 2-year old child measures 32 inches tall and weighs 24 pounds.
   A 10-year old child measures 52 inches tall and weighs 96 pounds.

   a. How many percent is the smaller child's
   age of the older child's age?

   b. How many percent is the smaller child's
   height of the older child's height?

   c. What percentage is the smaller child's
   weight of the older child's weight?

4. Write the *approximate* percentages into the sectors in the circle graphs. Think of fractions!

   a. **b.** **c.**

5. The circle graph at the right gives the angle measure of each sector
   of the circle. Find what percentage each sector is of the whole circle.
   Lastly, write that percentage *in* the sector in the image. Remember, the
   whole circle is 360°.
   Hint: think what percentage is 117° of 360°.

   15°
   32°
   117°
   130°
   66°

6. Nine hundred sixty people gathered at a medical conference. Of them, 450 were
   doctors, 220 were nurses, and the rest were researchers. Find what percentage
   of the people were doctors, what percentage were nurses, and what percentage
   were researchers.

Puzzle Corner

Draw or sketch a circle
graph to represent the
situation in exercise #6.

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