

Concept: Percent of a Number

Name: _____

Warm-Up:

Percent (%) means **per 100** or **out of 100**

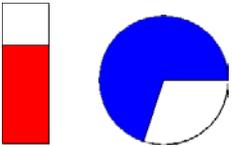
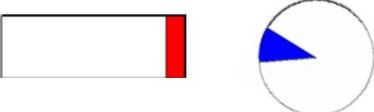
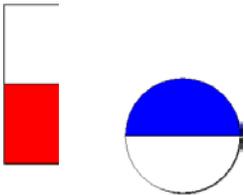
Circle 100% of the following:

100% of the balls. <div style="text-align: center; margin-top: 20px;">  </div>	100 % of the teddy bears <div style="text-align: center; margin-top: 20px;">  </div>
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Parts of both the rectangle and circle are shaded to show a percentage of the whole shape.

The whole shape would be **100** parts.

Given the part that is shaded calculate the percent shaded.

(a) <div style="text-align: center; margin-top: 20px;">  </div> <p style="text-align: center;">Part shaded is 70.</p> <p style="text-align: center;">70 is <u>70</u> % of <u>100</u></p>	(b) <div style="text-align: center; margin-top: 20px;">  </div> <p style="text-align: center;">Part shaded is 33.</p> <p style="text-align: center;">33 is <u>33</u> % of <u>100</u></p>
(c) <div style="text-align: center; margin-top: 20px;">  </div> <p style="text-align: center;">Part shaded is 10.</p> <p style="text-align: center;">10 is <u>10</u> % of <u>100</u></p>	(d) <div style="text-align: center; margin-top: 20px;">  </div> <p style="text-align: center;">Part shaded is 50.</p> <p style="text-align: center;">50 is <u>50</u> % of <u>100</u></p>

Calculate

(a) $\frac{1}{2} \times 8 = 4$

(b) $\frac{1}{5} \times 20 = 4$

(c) $\frac{2}{10} \times 70 = 14$

(d) $\frac{4}{9} \times 81 = 36$

Change the percent to a decimal

(a) $50\% = 0.50$

(b) $25\% = 0.25$

(c) $33\% = 0.33$

(d) $100\% = 1.00$

COMPUTER COMPONENT

Instructions: In  follow the **Content Menu** path:

Percent > Percent of a Number


Work through all Sub Lessons of the following Lessons **in order**:

- *In This Topic*
- *The Concept*
- *Examples*
- *The Bouncing Ball*
- *Successive Percentage Changes*
- *Grades...*



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

NOTES:

Reminder: The “**of**” in 10% **of** 100 means **multiply**.

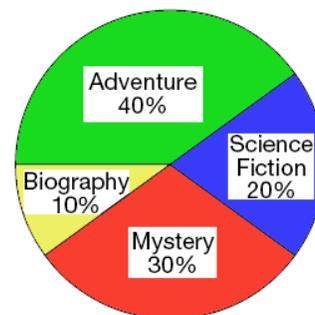
To find the percent of a number:

Change the **percent** to a **decimal** or **fraction**

then **multiply** by the number.

OFF COMPUTER EXERCISES

1. 30 students in a literature project in school were assigned four types of books to read. The circle graph shows the percentage of students who regularly read each type.



A. How many students read the following?

(a) Adventure

$$40\% = 0.40 \times 30 \\ = 12$$

(b) Biography

$$10\% = 0.10 \times 30 \\ = 3$$

(c) Mystery

$$30\% = 0.30 \times 30 \\ = 9$$

(d) Science Fiction

$$20\% = 0.20 \times 30 \\ = 6$$

B. How many more students read adventure books than biography books?

$$12 - 3 = 9 \text{ more students}$$

C. Name two types of books that were read by 50% of the students.

$$\textit{Adventure} + \textit{Biography} = 50\%$$

$$\textit{Mystery} + \textit{Science Fiction} = 50\%$$

D. Suppose 25% of the students who read adventure books read the same book. How many students read the same book?

$$25\% = 0.25 \times 12 = 3 \text{ students read the same book}$$

2. Without calculating 125% of 15:

(a) Do you expect a result more or less than 15? *Yes, because 100% would be 15*

(b) Is the result as much as 30? Why or why not? *No, because the percentage would need to 200% for the result to be 30.*

(c) Is the result about 20? Why or why not? *The result is about 20 because 25% of 15 almost 4. $4 + 15 = 19$ which is close to 20.*

Now calculate 125% of 15

$$125\% = 1.25 \times 15 = 18.75$$

3. Jasmine placed 30% of her weekly allowance in her savings account. Jasmine's allowance is \$12 each week.

(a) How much money does she place in her bank account each week?

$$30\% = 0.3 \times 12 = \$3.60 \text{ is placed in her bank account each week.}$$

(b) How much money does she place in her bank account each year?

$$\$3.60 \times 52 = \$187.20$$

(c) Does Jasmine leave herself enough spending money each week? Explain your answer.

It all depends on what Jasmine hopes to spend her money on...\$8.40

4. Find the percent of each number using a decimal. Then write each letter above the correct answer in the puzzle to complete the sentence.

<p>(a) 15% of 150 = E</p> $= 22.5$	<p>(b) 33% of 300 = A</p> $= 99$
<p>(c) 70% of 165 = B</p> $= 115.5$	<p>(d) 120% of 625 = G</p> $= 78$
<p>(e) 30% of 140 = A</p> $= 42$	<p>(f) 98% of 150 = R</p> $= 147$

<p>(g) 17% of 50 = E</p> <p style="text-align: center;">= 8.5</p>	<p>(h) 2% of 240 = V</p> <p style="text-align: center;">= 4.8</p>
<p>(i) 40% of 150 = V</p> <p style="text-align: center;">= 60</p>	<p>(j) 87% of 100 = A</p> <p style="text-align: center;">= 87</p>
<p>(k) 0.6% of 360 = O</p> <p style="text-align: center;">= 2.16</p>	<p>(l) 7% of 150 = E</p> <p style="text-align: center;">= 10.5</p>

Eighty percent of all people consider themselves to be

<u>A</u>	<u>B</u>	<u>O</u>	<u>V</u>	<u>E</u>	<u>A</u>	<u>V</u>	<u>E</u>	<u>R</u>	<u>A</u>	<u>G</u>	<u>E</u>
87	115.5	2.16	60	10.5	99	4.8	8.5	147	42	78	22.5

5. Of all the students who begin a post secondary education, 42% of those do not complete their education. If 60 people begin college in a given year, what is your **estimate** of how many would not complete their education?

(answers will vary)

- a. Explain how you determined your estimate.

(answers will vary)

- b. Calculate the actual number of students that are not expected to complete their education. Why do you think this happens?

42% of 60 = 0.42 × 60 = 25 people will not complete their education.

6. A ball is dropped from a height of 6m and rises to 82% of its original height with each bounce. After two bounces, what is the maximum height that the ball can be?

1st bounce- 82% of 6m = 0.82 × 6m = 4.92m

2nd bounce- 82% of 4.92m = 0.82 × 4.92m = 4.03m

7. Sophie has \$550 in her savings account. She withdraws 25% of her money and then spends 18% of the withdrawn money on new clothes. How much money does she have left

a. in her bank account? (Hint: $\frac{3}{4}$ of it is left in the bank)

$$75\% \text{ of } \$550 = 0.75 \times \$550 = \$412.50$$

b. of the withdrawn money?

$$25\% \text{ of } \$550 = 0.25 \times \$550 = \$137.50 \text{ (amount of money withdrawn from bank)}$$

$$18\% \text{ of } \$137.50 = 0.18 \times \$137.50 = \$24.75 \text{ (amount spent on clothing)}$$

$$\$137.50 - \$24.75 = \$112.70 \text{ (amount left of withdrawn money)}$$

8. The final Math mark for this year is calculated as follows

$$\text{Final Grade} = 65\% \text{ of the term grade} + 35\% \text{ of the exam grade}$$

Fill in the chart below.

	My Current term Grade Is....	Possible Exam Grade ...	My Final Grade Will Be
(a)	86%	0%	56%
(b)	86%	80%	84%
(c)	86%	92%	88%
(d)	50%	75%	59%
(e)	64%	42%	56%
(f)	64%	80%	70%

Which one of the possible situations in the previous chart is least likely to happen? Why?

The first option, 86% current term grade, is least likely to become 56% percent because something would have to go incredibly wrong in order for you to achieve only a '0' on the final exam.