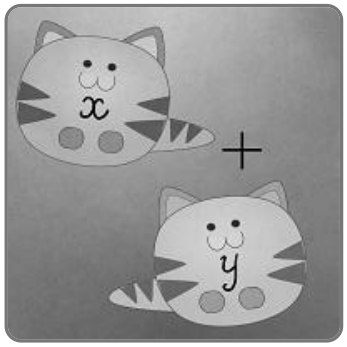
WRITING EXPRESSIONS INVOLVING PERCENT INCREASE AND DECREASE

- Want more practice with percents and related concepts?
  Changing Decimals to Percents
  Changing Percents to Decimals
  Calculating Percent Increase and Decrease
  Problems Involving Percent Increase and Decrease
  More Problems Involving Percent Increase and Decrease



(more mathematical cats)

Recall that whenever you see the percent symbol, $\%$, you can trade it in for a multiplier of $\frac{1}{100}$.
(Indeed, per-**cent** means per-**one-hundred**.)

For example, 20% goes by all these names:

$$20\% \;=\; 20 \cdot \frac{1}{100} \;=\; \frac{20}{100} \;=\; \frac{2}{10} \;=\; \frac{1}{5} \;=\; 0.2$$

In particular, note that $100\% = 100 \cdot \frac{1}{100} = 1$,
so 100% is just another name for the number 1.

Also recall that it's easy to go from percents to decimals:
just move the decimal point two places to the left.
For example: $20\% = 20.\% = 0.20$
It's good style to put a zero in the ones place (i.e., write 0.20, not $.20$).

To change from decimals to percents,
just move the decimal point two places to the right.
For example: $0.2 = 0.20 = 20.\% = 20\%$

The 'Puddle Dipper' memory device may be useful to you:
Pu**D**d**L**e: to change from **P**ercents to **D**ecimals, move the decimal point two places to the **L**eft.
Di**P**pe**R**: to change from **D**ecimals to **P**ercents, move the decimal point two places to the **R**ight.

EXAMPLES:

Here, you will practice writing expressions involving percent increase and decrease, and related concepts.

Another name for the expression ' 20% of x ' is: $0.2x$
Why? The mathematical word 'of' indicates multiplication, so:
$(20\% \text{ of } x) = (20\%)(x) = (0.2)(x) = 0.2x$.

Another name for the expression ' 100% of x ' is: x

Another name for the expression ' 300% of x ' is: $3x$

If x increases by 20%, then the new amount is: $x + 0.2x = 1x + 0.2x = 1.2x$

If x has a 20% increase, then the new amount is: $1.2x$

If x increases by 47%, then the new amount is: $x + 0.47x = 1.47x$

If x decreases by 30%, then the new amount is: $x - 0.3x = 1x - 0.3x = 0.7x$

If x has a 30% decrease, then the new amount is: $0.7x$

If x increases by 100%, then the new amount is: $x + x = 1x + 1x = 2x$

If x increases by 182%, then the new amount is: $x + 1.82x = 2.82x$

If x increases by 200%, then the new amount is: $x + 2x = 3x$

If x doubles, then the new amount is: $2x$

If x triples, then the new amount is: $3x$

If x quadruples, then the new amount is: $4x$

If x is halved, then the new amount is: $\frac{1}{2}x = 0.5x$