

## Week 2 Day 1 Notes (please write notes and date)

What is algebra?

Solving math is working in a forward direction.

Please solve all these examples

$$-2 + 3 =$$

$$10 - 5 + 2 =$$

$$2(7 - 3) - 1 =$$

$$1/2(3 - 5) + -3 - (2 - -1) =$$

$$1 - 2(3 - 11/2) - 22/3 + 4 \times 2 =$$

To solve these you need to remember bedmas and solve the difficult ones in several steps.

A real life question.

I buy a shirt for 28.50 and have to pay 12 % sales tax, what do I have to pay in total?

please solve

With algebra questions we have to work backwards.

A very simple example is:

$$2 + \underline{\quad} = 5 \text{ too easy ( 3 )}$$

$$-2 + \underline{\quad} = 5 \text{ a better question ( I think 7 )}$$

$$-2 - \underline{\quad} = 5 \text{ tricky need to know steps( Don't know 3 maybe 7 or negative? )}$$

For this, we know part of the question and the answer.

We do not like to leave  $\underline{\quad}$  for the unknown, so we use a Variable, like m.

Please define variable -

We really try to stay away from x, because  $2 + m = 10$  is a good question

$$2 + x = 10 \text{ is ok but}$$

$$2 \times x = 10 \text{ gets confusing}$$

The general rule is try and use a letter that indicates what you are solving for.

If you are trying to find the number of hours you worked use h

or if you need the cost of a shirt use c, make it something appropriate.

To solve these questions we need to use a manipulative to model this situation.

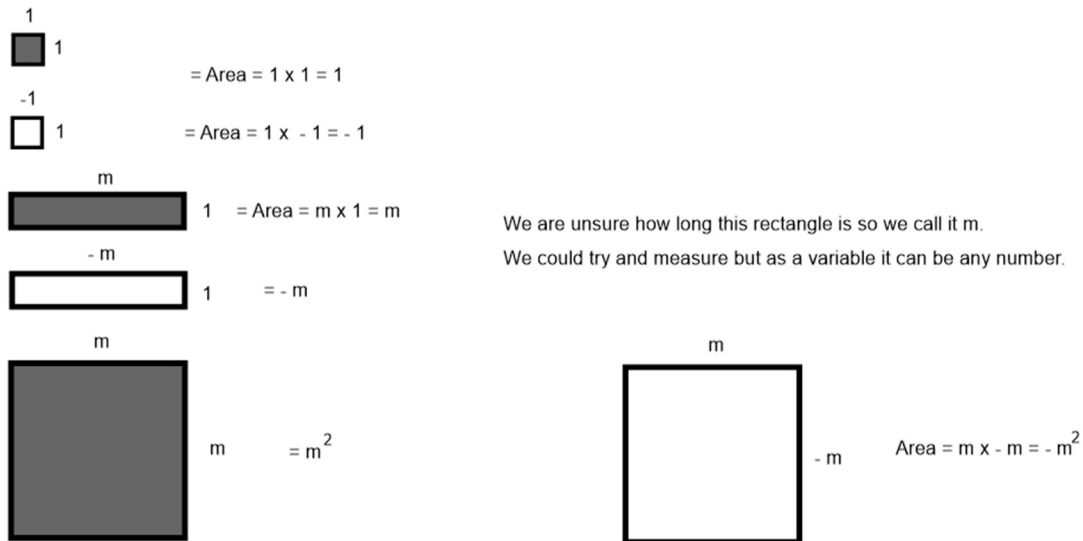
We used integers chips to manipulate integers

Please show how to solve using integer chips

$$-3 + 2 = \text{(two piles combine, cancel zero pairs)}$$

$$-3 - 2 = \text{(one pile, take some away, if you can not add zero pairs first)}$$

For Algebra use algebra tiles please copy the image



For algebra we need 5 basic rules (if we write them here it will help us memorize them)

We do not know what they mean yet, but we will.

- 1 - Opposite Operations ( for add do sub, for mult do div, for square do square root )
- 2 - Do the same to both sides ( think of a teeter totter, must be balanced )
- 3 - SAMDEB ( this means undo BEDMAS, its just BEDMAS backwards )
- 4 - Isolate the Variable ( simplify until you have var = everything else )
- 5 - Always simplify ( Every step should make it a easier question )

I think this is enough for notes for today.

### Examples

1.  $m + 3 = 5$  (You need to do the opposite and subtract 3 from both sides, then cross out the 3s)

$$\begin{array}{r} -3 \quad -3 \\ m + 3 = 5 \\ \hline m = 2 \end{array}$$

2.  $4m = 20$  (  $4m = \text{multiply} = 4 \times m = 4(m)$  all mean the same )

(Here you need to do the opposite of mult, divide both side by the number in front of the variable, 4)

$$\underline{4m = 20}$$

$$\begin{array}{r} 4 \quad 4 \\ 4m = 20 \\ \hline m = 5 \end{array} \quad (\text{again cross out the 4s on the left because } 4 / 4 = 1)$$

$$m = 5$$

I need to see the work, the div by 4 and cancelling is 1 mark, the answer of 5 is 1 mark.

Please try and solve these last questions, you need to show your work.

1.  $2m = 10$

5.  $m - 3 = 5$

2.  $-4m = 12$

6.  $m + 3 = -5$

3.  $\frac{p}{2} = 3$

7.  $5 - m = 3$

2

4.  $\frac{-p}{4} = 3.5$

8.  $3 - m = 5$  This ones tricky

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