Math 4a. Class work 1.

A. Word problems.

Read the following "word problems". What can you tell about each of them? Try to solve them.

a) Jessica is older than Sam, Ann is older than Jessica, and Robert's age is same as Sam's. Who is the oldest?

b) Mike has 25 cards; John has 5 cards more than Mike. How many cards do John, Mike and Robert have altogether?

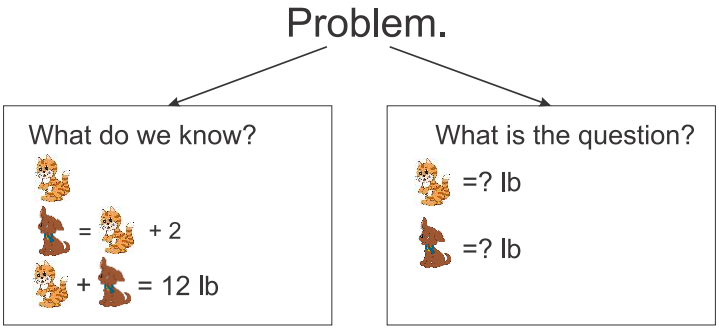
c) On a farm there were 6 cows and 20 sheep. Each cow gives 4 gallons of milk every day. How many farm animals were there on the farm?

d) In a math class 10 students were solving problems. Each student solved exactly 5 problems. How many students did solve 7 problems?

e) In a math class 10 students were solving problems. Each student solved at least 5 problems. How many students did solve 7 problems?

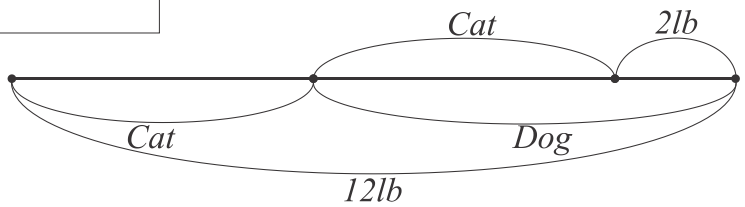
f) Two circles touch at a single point (tangent circles). One has radius of10 cm and the other has radius of 6 cm. What is the distance between the centers of these circles?

1. A dog weighs 2 pounds more than a cat. Together, a dog and a cat weigh 12 pounds. How many pounds does the dog weigh? How many pounds does the cat weigh?

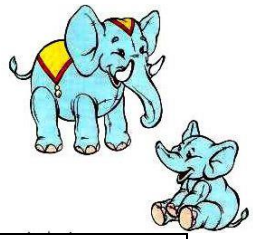


What do we know?	What is the question?
Cat – C Dog – C+2 Altogether - 12 lb	Cat - ? Dog - ?

$C + (C + 2) = 12lb$



2. An adult elephant weighs 10833 pounds more than a baby elephant. Together they weigh 32037 pounds. How many pounds does a baby elephant weight?



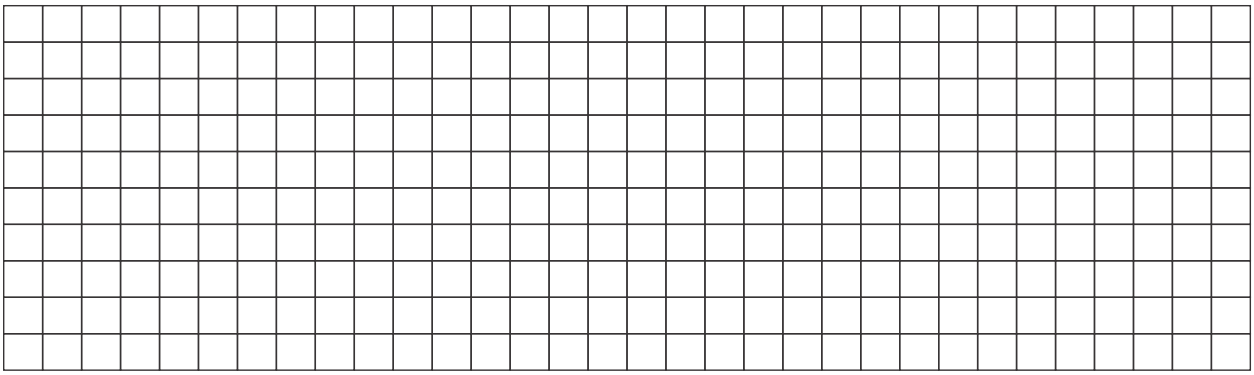
What do we know?	What is the question?

Draw a schematic picture of the problem if it can help you:

3. In a lake there are 4 times as many trout as bass. There are 1585 bass and trout altogether. How many trout and how many bass there are in the lake?

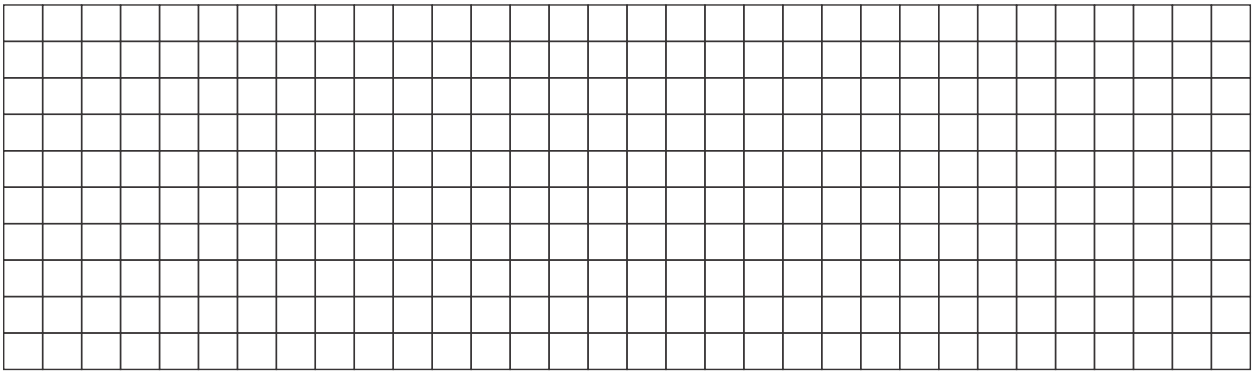
What do we know?	What is the question?

Draw the schematic picture of the problem if it can help you:



4. In an elementary school there are 155 studens. $\frac{3}{5}$ of them like math, half of the rest like language art. How many students do like language art?

What do we know?	What is the question?



Exercises:

1. Solve the following equations:
   Example;

$2x + 8 = 36$

$2x = 36 - 8$

$2x = 28$

$x = 28 \div 2$

$x = 14$

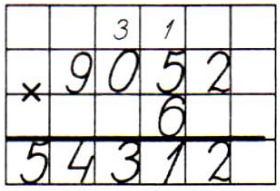
a) $x - 14 = 28$
b) $24 - y = 7$
c) $5x + 7 = 52$ (6)

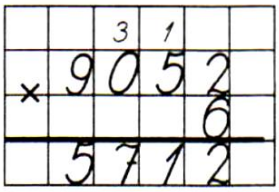
2. Calculate:
   Example:

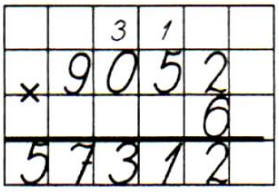
$(8 \div 2 + 3) \times 3 + (56 - 34) = (4 + 3) \times 3 + 22 = 21 + 22 = 43$

a. $(24 + 18) \div 7 - 0 \times (82 - 58) + 16 \times 3;$
b. $21 \div (96 - 89) + (7 \times 4 + 6) \times 2 - 56 \div 56;$ (6)

3. Find and correct mistakes in each example below. In the empty box solve this multiplication problem correctly. (4)







4. Word Problems:

Example:

Mary and Julia are twins. They invited 28 friends to their birthday party. Mary wrote 3 time as many invitation cards as Julia did. How many cards did Julia write? (4)

Julia - x cards

Mary - $3 \times x$ cards

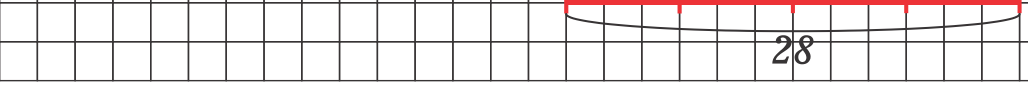
Total - 28 cards

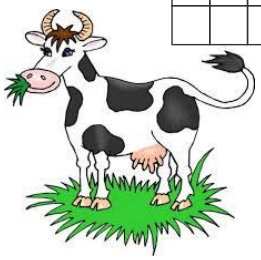
Julia wrote 7 cards.

$x + 3 \times x = 28$

$4 \times x = 28$

$x = 28 \div 4 = 7$





a. A cow weighs 20 times as much as sheep weights. Together the cow and the sheep weight 2100 lb. How many pounds does the sheep weight? How many pounds does the cow weight?

b. There are 93 students in the 1st, 2nd and 3rd grades altogether. The number of students in the 1st and 2nd grades is 62, and in 2nd and 3rd grades is 64. How many students are there in each grade?

5. Replace the addition with multiplication:

Example:

$14 + 14 + 14 + 14 = 4 \times 14$

$x + x + x = 3 \times x$

a. $35 + 35 + 35 + 35 + 35$;

b. $120 + 120 + 120 + 120$

c. $a + a + a + a + a + a + a + a$;

d. $x + x + x + x + x$;

e. $\underbrace{34 + 34 + \cdots + 34}_{10\ times}$

f. $\underbrace{23 + 23 + \cdots + 23}_{100\ times}$

e. $\underbrace{a + a + \cdots + a}_{100\ times}$

6. Compare without doing calculations (put <, >, or =):

   a. $2453 + 235$ ____ $2453 + 236$
   b. $2341 - 123$ ____ $2341 - 122$
   c. 234×123 ____ 234×122
   d. $456 \div 4$ ____ $456 \div 3$
   e. $a \div 4$ ____ $a \div 3$
   f. $b + 235$ ____ $b + 236$

7. Calculate by the most convenient way:

   a. $2608 + 529 + 392 + 271 =$

   b. $1016 + 704 + 250 + 884 + 296 =$

8. Place parentheses into the following expression so that the statement is true.

   a. $1\,5 - 3\,5 + 5 \div 4 = 5$
   b. $60 + 40 - 16{:}\,4 = 66$
   c. $24{:}\,56 - 8 \cdot 4 = 1$
   d. $96 - 12 \cdot 6{:}\,3 = 8$
   e. $64{:}\,64 - 8 \cdot 4 = 2$
   f. $63{:}\,9 + 54 = 1$
   9. $75 - 15{:}\,5 + 10 = 22.$

9. Solve the following riddles (each letter represents a digit):

```
  EAT
+ THAT
 APPLE
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  CIRCLE
  CIRCLE
+CERCLE
 SPHERE
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  ELF
+ ELF
 FOOL
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10. Compute:

$\frac{2}{5} + \frac{1}{5} =$ $\frac{7}{9} - \frac{4}{9} =$ $\frac{1}{2} + \frac{1}{4} =$

$\frac{5}{9} + \frac{1}{9} =$ $\frac{3}{8} + \frac{1}{2} =$ $\frac{9}{12} - \frac{2}{3} =$