

## 1.6 SENTENCES TRANSLATED INTO ALGEBRAIC EQUATIONS:

PROBLEMS IN ARITHMETIC CAN BE EXPRESSED IN SENTENCES. THEY CAN BE TRANSLATED INTO ALGEBRAIC LANGUAGE.

1. SOME NUMBER PLUS FOUR EQUALS SEVEN.  $x+4=7$
2. SOME NUMBER MINUS TWO EQUALS ONE.  $x-2=1$
3. THREE TIMES SOME NUMBER EQUALS SIX.  $3x=6$
4. ONE HALF SOME NUMBER IS TWO.  $x/2=2$

THESE STATEMENTS IN ALGEBRAIC LANGUAGE ARE KNOWN AS EQUATIONS.

AN EQUATION IS THE EQUALITY OF TWO QUANTITIES.

## 1.7 SOLUTION BY TRIAL

VALUE OF  $x$ : LEFT SIDE = RIGHT SIDE

1.  $x+4=7$

2.  $x+4=7$

3.  $3+4=7$

4.  $4+4=8$

IF  $x=3$ ,  $3+4=7$

## 1.8 ALGEBRAIC SOLUTION OF WRITTEN PROBLEMS

$\$3000/2$        $\$3000/a+b$        $a=2b$

$b=x=3000/3$        $2x+x=3000$        $a=2000$

$2x=2000$        $3x=3000$        $b=1000$

$3000/3=1000$        $1000/2=500$        $a=1000+500+500=1000$

$3000-2000=1000$        $500 \times 2=1000$        $b=1000+500+500=1000$

FOUR MEN \$80       $a=x$        $b=x$        $c=2x$        $d=2x+2x$

$x+x+2x+4x=80$        $8x=80$        $x=10$        $a=10$        $b=10$        $c=20$        $d=40$

25% OF  $x$  IS 40,  $x=?$        $25=40$

$x=x$        $0.25x=40$        $x=160$

## 1.9 SOLUTION OF LINEAR EQUATIONS:

1. AN EQUALITY REMAINS THE SAME IF THE SAME AMOUNT IS ADDED TO BOTH SIDES.

2. AN EQUALITY REMAINS THE SAME IF THE SAME AMOUNT IS SUBTRACTED FROM BOTH SIDES:  $6=6$ ;  $6-2=6-2$ .

3. AN EQUALITY REMAINS THE SAME IF BOTH SIDES ARE MULTIPLIED BY THE SAME AMOUNT:  $6=6$ ;  $6 \times 2=6 \times 2$ .

4. AN EQUATION REMAINS IF BOTH SIDES ARE DIVIDED BY THE SAME AMOUNT:  $6=6$ ;  $6 \div 2=6 \div 2$ .

EX:  $x+4=7 \rightarrow x+4-4=7-4 \rightarrow x=3$