Tutorial 2

1. Solve the following:

a) $2x+6x+24=1$	b) $2x+5=3x+12$	c) $3(x+2)-4(x-1)=5$
d) $0.3t+0.2(t+10)=5$	e) $\frac{x}{2}+\frac{x}{3}=10$	f) $\frac{h+7}{2}+\frac{1}{3}=\frac{1}{2}-\frac{2h+9}{9}$

2. Solve the unknowns in the square brackets:

a) $d=t\left(1-\frac{1}{u}\right)$, $[u]$ $d=$ 3, $t=12$	b) $C=\frac{nE}{R+nr}$, $[n]$ $C=$ 3.5, $E=17$, $R=6$, $r=4$	c) $c^2=(x-a)^2+b^2$, $[x]$ $a=$ 16, $b=15$, $c=17$

3. Solving of problems:

Basic steps of solving problems:

1. Define a symbol to represent the unknown or use standard symbol of a formula to represent the unknown.
2. Set up equation according to the condition of the question. (use formula if possible)
3. Substitute the data into the equation
4. Solve the equation

3	Two common scales used to measure temperature are the Fahrenheit and the Celsius scales. The formula $F=\frac{9}{5}C+32$ converts degrees Celsius to degrees Fahrenheit. Now the temperature of an object is 98.6F, what is its temperature in Celsius?	Explanation

4	The perimeter of a rectangle is 20cm. Its length is 6cm. Find its width.	Explanation

5	The sum of two consecutive numbers is 19. Find the two numbers.	Explanation

Numerical Solutions

1.

a) $x = -\frac{23}{8}_{\#}$	b) $x = -7_{\#}$	c) $x = 5_{\#}$
d) $t = 6_{\#}$	e) $x = 12_{\#}$	f) $h = -6_{\#}$

2.

a) $u = \frac{4}{3}$	b) $n = 7_{\#}$	c) $x = 8 \text{ or } 24_{\#}$

Solution	$F = \frac{9}{5}C + 32$ $98.6 = \frac{9}{5}C + 32$ $\frac{9}{5}C = 66.6$ $C = 37°C_{\#}$	Step 2, formula given Step 3: substitution. Step 4:solving of equation

Solution	$P = 2(l + w)$ $20 = 2(6 + w)$ $2w = 20 - 12$ $= 8$ $w = 4cm_{\#}$	Step 2, use of formula Step 3, substitution. Step 4, solving of equation

Solution	Let the smaller number be x, then the larger number is $x + 1$. Sum = 19 $x + (x + 1) = 19$ $2x = 18$ $x = 9$ The numbers are 9 and 10.	Step 1. Step 2 : condition: "sum is 19" Step 3, substitution. Step 4, solving of equation. question asked for 2 numbers