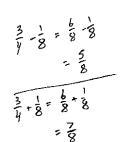
## M30-3 Tolerances Assignment (MathWorks 12 Workbook pg. 102-104)

Name: <u>FEY</u>

1. Complete the following table.

TOLERANCES				
Nominal value	Minimum value	Məximum value	Tolerance	± range
115 mm	112mm	112mm	6 mm	± 3 <sub>mm</sub>
15 cm	12.5 cm	17.5 cm	5cm	± 2.5cm
90°F	85°F	95°F	10°F	± 5°F
3 <u>3</u> "	35	3 ?"	1"	17



- 2. Munita is making custom kitchen cabinets. The front face of a drawer must have a width between  $17\frac{15}{16}$  and  $18\frac{1}{16}$  and a height between  $6\frac{15}{16}$  and  $7\frac{1}{16}$ .
  - a) What are the nominal dimensions of the drawer face?

b) What is the tolerance in the measurements?

$$\frac{1}{16} + \frac{1}{16} = \frac{2}{16}$$

c) Write the width and height in the form nominal value  $\pm \frac{1}{2}$  (tolerance).

width 
$$18" \pm \frac{1}{16}"$$

height  $7" \pm \frac{1}{16}"$ 

- 3. A chemical mixture in a manufacturing process needs to reach a nominal temperature of 10.0°C, with a tolerance of 0.5°C.  $10.0^{\circ}$ C  $\pm 0.25^{\circ}$ C
  - a) What are the minimum and maximum acceptable temperatures? Write them in the form maximum value .

$$max:mum = 10.0^{\circ}C + 0.25^{\circ}C$$
  $m:n:mum = 10.0^{\circ}C - 0.25^{\circ}C$   $= 9.75^{\circ}C$   $= 9.75^{\circ}C$ 

b) Write the temperature in the form nominal value  $\pm \frac{1}{2}$  (tolerance).

4. A medication specifies that it contains 0.0406 mg  $\pm$  0.0001 mg of a specified drug. Calculate the tolerance and the maximum and minimum quantities of the drug present in the medication.

$$max = 0.0406 mg + 0.0001 mg$$
  $min = 0.0406 mg - 0.0001 mg$   $tolerake = 0.0407 mg - 0.0405 mg$   $= 0.0407 mg$   $= 0.0405 mg$ 

- 5. Junichi is tiling a roof. The building code specifies that roof tile may have an overhang of a maximum of 64 mm and a minimum of 35 mm.
  - a) Calculate the nominal overhang for a roof tile.

nominal overhay = 
$$\frac{64mm + 35mm}{2}$$
 = 49,5mm

b) Express the tolerance in the form nominal value  $\pm \frac{1}{2}$  (tolerance).

tolernue = 
$$64mn - 35mn$$
  
=  $29mn$   
=  $\frac{1}{49.5mn} \pm \frac{1}{4}(29mn)$   
=  $\frac{1}{49.5mn} \pm \frac{1}{4}(29mn)$