

①	00	14	31
	01	15	32
	02	16	33
	03	20	34
	04	21	35
	05	22	36
	06	23	40
	10	24	41
	11	25	
	12	26	
	13	30	

② (last page)

$$\begin{array}{r} \textcircled{3} \quad \textcircled{a} \quad -512 \\ \textcircled{b} \quad 11\overline{)84} \\ \hline 012 \\ \hline 1284 \end{array}$$

$$\begin{array}{r} \textcircled{c} \quad D71 \\ \textcircled{d} \quad A3 \\ \hline E14 \end{array}$$

④	A	B	A in 2's comp	B in 2's comp	A+B	A-B
10	-1		001010	111111	001010	001011
11	-4		001011	111100	000111	001111
7	-15		000111	110001	111000	010110

$$\begin{array}{l} \textcircled{5} \quad @9 = 001001 \\ 5 = 000101 \\ \hline 32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1 \end{array}$$

$$\begin{array}{r} 001001 \\ + 000101 \\ \hline 001110 \end{array}$$

$$\begin{array}{r} 21 = 0 \quad 1 \quad 0 \quad 1 \\ \quad \quad \quad \downarrow 32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1 \\ -5 = 1 \quad 1 \quad 1 \quad 0 \quad 1 \quad 1 \\ \hline -32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1 \end{array}$$

$$\begin{array}{r} 010000 \\ \hline 010000 \end{array}$$

$$\textcircled{5} \quad \begin{array}{r} 15 = \\ 3 = \\ \hline 010010 \end{array}$$

$$\textcircled{a} \quad \begin{array}{r} 1000001 \\ - 32 \end{array} \overline{)100000}$$

$$\begin{array}{r}
 \textcircled{6} @ 00000000 = 0 \\
 10001100 = -12 \\
 00001101 = 13 \\
 10101111 = -47 \\
 00111111 = 63 \\
 01001011 = 35
 \end{array}$$

can't
represent
the value
in 8 bits

gm valve - Shows if Positive or negative

⑦ @ 110011
101110

⑧ 1100001

$$\begin{array}{r} \textcircled{b} \quad 11110 \\ + 01011 \\ \hline 01001 \end{array}$$

② 1101101
 0100016

③ 0001111

(d) 10110
 01100
100010

$$\begin{array}{r} \textcircled{8} \textcircled{9} \quad 110011 \\ - 101110 \\ \hline 000101 \end{array}$$

$$\begin{array}{r}
 \textcircled{b} \quad 11110 \\
 - 01011 \\
 \hline
 10011
 \end{array}$$

$$\begin{array}{r} \textcircled{C} \quad 1101101 \\ - 0100010 \\ \hline 1001011 \end{array}$$

$$\begin{array}{r} \textcircled{d} \quad 10110 \\ - 01100 \\ \hline 01010 \end{array}$$

$$\begin{array}{r}
 \textcircled{9} \quad \textcircled{9} \quad 01100100 \\
 + \underline{00011011} \\
 \hline
 01111111
 \end{array}
 \quad \text{no overflow}$$

$$\begin{array}{r} \textcircled{5} & 11001011 \\ + & 10110110 \\ \hline \textcircled{1} & \underline{10000001} \end{array} \quad \text{overflow}$$

$$\begin{array}{r} \textcircled{C} \quad 01000101 \\ + \quad 00111011 \quad \text{no overflow} \\ \hline 10000000 \end{array}$$

$$\begin{array}{r} \textcircled{d} \\ + \\ \underline{10110100} \\ \hline \textcircled{1} \ 10000000 \end{array} \quad \text{overflow}$$

<u>Base 2</u>	<u>Base 6</u>	<u>Base 8</u>	<u>Base 10</u>	<u>Base 16</u>
10101.011	33,213	25.3	21,378	15.6
11101.001	45,112	38,165	29,229	1D,3A9
1000001.01	145,140	101,22	65,281	41,47E
1010011.011	215,222	123,314	83,4	53,666
110010,101	122,345	62,5	80,628	32A