

## Learning Target 1

①	Input	Quotient	Remainder	
	888	111	0	} $\Rightarrow (888)_{10} = (1570)_8$
	111	13	7	
	13	1	5	
	1	0	1	
	0	0	0	
			Terminate	

$$\begin{aligned}
 \textcircled{2} (342)_{16} &= 3 \times 16^2 + (10) \times 16^1 + 2 \times 16^0 \\
 &= 768 + 160 + 2 \\
 &= (930)_{10}
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{3} (111\ 0010)_2 &= (0011\ 10010)_2 \\
 &= (001)(110)(1010) \\
 &= (1\ 6\ 2)_8
 \end{aligned}$$

← Pad w/ 2 zeroes for convenience

← Group into blocks of 3 bits

← Convert each block

$$\begin{aligned}
 \textcircled{4} \quad 0001\ 0110 &\rightarrow 1110\ 1001 && \text{Flip bits} \\
 &+ \quad \quad \quad 1 && \text{Add 1} \\
 \hline
 &1110\ 1010
 \end{aligned}$$

## Learning Target 2

$$\begin{array}{r}
 \phantom{+} \begin{array}{cccccccc} & & 1 & & 1 & & 1 & \\ 1 & 1 & 0 & 0 & 1 & 1 & 0 & 1 \end{array} \\
 + \begin{array}{cccccccc} 0 & 0 & 0 & 1 & 0 & 1 & 1 & 0 \end{array} \\
 \hline
 \begin{array}{cccccccc} 1 & 1 & 1 & 0 & 0 & 0 & 1 & 1 \end{array}
 \end{array}$$

$$\begin{array}{r}
 \phantom{-} \begin{array}{cccccccc} & & & & & 0 & & 10 \\ 1 & 1 & 0 & 0 & 1 & 1 & 1 & 0 \end{array} \\
 - \begin{array}{cccccccc} & & 0 & 0 & 0 & 1 & 0 & 1 \end{array} \\
 \hline
 \begin{array}{cccccccc} 1 & 1 & 0 & 0 & 0 & 0 & 0 & 1 \end{array}
 \end{array}$$

Continued



$$\begin{array}{r}
 \phantom{0000000}10111 \\
 \times \phantom{0000000}101 \\
 \hline
 \phantom{0000000}10111 \\
 \phantom{0000000}000000 \\
 + \phantom{0000000}1011100 \\
 \hline
 1110011
 \end{array}$$

$$\begin{array}{r}
 \phantom{0000000}110 \\
 11 \overline{) 10011} \\
 \underline{11} \phantom{0000} \\
 \phantom{0000}11 \\
 \phantom{0000}11 \\
 \underline{\phantom{0000}11} \phantom{00} \\
 \phantom{0000}00 \\
 \phantom{0000}00 \\
 \underline{\phantom{0000}00} \\
 \phantom{0000}1
 \end{array}$$

Quotient 110  
 Remainder 1

### Learning Target 3

If it's raining, we will not play.

1. It's raining
2. We will not play
3. If we don't play, it's  raining.
4. If we play, it's not raining.
5. If it's not raining, we will play.
6. It's raining and we are playing.

### Learning Target 4

①	P	q	r	q ∨ r	P → (q ∨ r)
	T	T	T	T	T
	T	T	F	T	T
	T	F	T	T	T
	T	F	F	F	F
	F	T	T	T	T
	F	T	F	T	T
	F	F	T	T	T
	F	F	F	F	T

Continued  
↓

②	$p$	$q$	$p \vee q$	$\neg(p \vee q)$	$\neg p$	$\neg q$	$(\neg p) \wedge (\neg q)$
	T	T	T	F	F	F	F
	T	F	T	F	F	T	F
	F	T	T	F	T	F	F
	F	F	F	T	T	T	T

These statements  
are logically equivalent