Section 1.6 Homework

1. For each of the following, **draw** the blocks and show the trading.
- **a.** Show how you would add $214_5 + 24_5$ in base 5 using base 5 blocks and trading.
- **b.** Show how you would add $114_5 + 44_5$ in base 5 using base 5 blocks and trading.
- **c.** Show how you would subtract $214_5 - 44_5$ in base 5 using base 5 blocks and trading.

2. **Add** each of the following. You can use blocks if you like, but you do not have to:

a)	**b)**	**c)**	**d)**
245_8	214_6	1001_2	298_{12}
$+ \underline{173}_8$	$+ \underline{543}_6$	$+ \underline{1011}_2$	$+ \underline{115}_{12}$

3. **Subtract** each of the following:

a)	**b)**	**c)**	**d)**
273_8	101_2	214_{12}	514_6
$- \underline{155}_8$	$- \underline{11}_2$	$- \underline{193}_{12}$	$- \underline{143}_6$

4. **Converting Practice.** Check your addition in #2c by converting each binary number into base 10, then adding them and converting the answer back into base 2. That is:
- **a.** Convert 1001_2 into base 10.
- **b.** Convert 1011_2 into base 10.
- **c.** In regular base 10 addition, add your two answers to parts a and b.
- **d.** Convert your answer into base 2.
- **e.** Is your result the same as when you added them in problem 2, above? (IT should be!)

5. **Review Babylonian.** Convert the following numbers into Hindu Arabic (our system). (The space indicates a new place value.)

a.  **b.** 

6. Name at least three numbers this could be, depending on whether there was an unwritten zero in between the two sets of symbols, or no zero, or a zero after the two symbols. 

7. Convert the following numbers into Babylonian: **a.** 204 **b.** 185

8. **Review Converting Bases**
- a. Convert 85 into base 6.
- b. Convert 134_{12} into base 10.
- c. Convert 1445 into base 12.