

**Instructions:** Show all work. Partial credit can only be given where work is shown. Be sure to answer all parts of each question. You may not use a calculator on this quiz.

1. Calculate  $2 \otimes (3 + 6)$  in 12-clock.

$$\begin{array}{c} 9 \\ 2 \otimes 9 = 9 + 9 = 18 \Rightarrow 6 \pmod{12} \\ 6 \end{array}$$

$$\begin{array}{l} \text{or } 2 \otimes 3 + 2 \otimes 6 \\ 6 + \cancel{12} \\ 12 = 0 \pmod{12} \\ = 6 \end{array}$$

2. Find all  $n$  in  $-20 \leq n \leq 20$  so that  $n = 3 \pmod{5}$ .

$$-17, -12, -7, -2, 3, 8, 13, 18$$

3. Fill in each empty square so that the number in the square will be the sum of the pair of numbers beneath the square.

