Thinking Ahead

ACTIVITY

1. Here are some patterns of equations.

a.
$2 + 4 = 6$
$4 + 6 = 10$
$6 + 8 = 14$
$8 + 10 = 18$

b.
$2 - 1 = 1$
$4 - 2 = 2$
$6 - 3 = 3$
$8 - 4 = 4$

c.
$1 + 4 = 2 + 3$
$2 + 5 = 3 + 4$
$3 + 6 = 4 + 5$
$4 + 7 = 5 + 6$

d.
$5 - 3 = 2$
$10 - 6 = 4$
$15 - 9 = 6$
$20 - 12 = 8$

e.
$1 = 2 \div 2$
$2 = 4 \div 2$
$3 = 6 \div 2$
$4 = 8 \div 2$

f.
$1 + 2 + 3 + 4 = 2 \times 5$
$2 + 3 + 4 + 5 = 2 \times 7$
$3 + 4 + 5 + 6 = 2 \times 9$
$4 + 5 + 6 + 7 = 2 \times 11$

g.
$1 \times 3 = (2 \times 2) - 1$
$2 \times 4 = (3 \times 3) - 1$
$3 \times 5 = (4 \times 4) - 1$
$4 \times 6 = (5 \times 5) - 1$

For each pattern:

i. Find the next three equations in the pattern.

ii. Write a rule to describe the pattern. Then use your rule to write the tenth equation in the pattern.

2. What numbers could be written in the blank boxes below to make each set of equations into a pattern?

a.
$1 + 3 = 2 \times \square$
$2 + \square = 2 \times 3$
$3 + 5 = \square \times 4$
$\square + 6 = 2 \times 5$
$\vdots$
$9 + \square = 2 \times \square$

b.
$100 - 1 = \square$
$100 - 11 = \square$
$100 - \square = 79$
$100 - \square = 69$
$\vdots$
$\square - 81 = \square$

c.
$1 + 1 = 1 \times \square$
$2 + 4 = 2 \times \square$
$3 + 9 = \square \times 4$
$4 + \square = 4 \times 5$
$\vdots$
$9 + \square = 9 \times \square$