12. Two-Digit × Two-Digit

a)

$$23 \times 14$$

Method 1: Decompose Both

$$23 = 20 + 3 \qquad 14 = 10 + 4$$

$$(20 + 3) \times (10 + 4)$$

$$20 \times 10 = 200 \qquad 3 \times 10 = 30 \qquad 20 \times 4 = 80 \qquad 3 \times 4 = 12$$

$$200 + 30 + 80 + 12 = 322$$

Method 2: Decompose One

$$14 = 10 + 4$$

$$23 \times (10 + 4)$$

$$23 \times 10 = 230 \qquad 23 \times 4 = 92$$

$$230 + 92 = 322$$

12. Two-Digit × Two-Digit

b)

$$32 \times 21$$

Method 1: Decompose Both

$32 = \square + \square$ $\quad$ $21 = \square + \square$

$\square \times \square = \square$ $\quad$ $\square \times \square = \square$ $\quad$ $\square \times \square = \square$ $\quad$ $\square \times \square = \square$

$\square + \square + \square + \square = \square$

Method 2: Decompose One

$21 = \square + \square$

$32 \times \square = \square$ $\quad$ $32 \times \square = \square$

$\square + \square = \square$

12. Two-Digit × Two-Digit

c)

41 × 23

Method 1: Decompose Both

41 = ☐ + ☐ 23 = ☐ + ☐

☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐

☐ + ☐ + ☐ + ☐ = ☐

Method 2: Decompose One

23 = ☐ + ☐

41× ☐ = ☐ 41× ☐ = ☐

☐ + ☐ = ☐

12. Two-Digit × Two-Digit

d)

34 × 22

Method 1: Decompose Both

34 = ☐ + ☐ 22 = ☐ + ☐

☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐

☐ + ☐ + ☐ + ☐ = ☐

Method 2: Decompose One

22 = ☐ + ☐

34× ☐ = ☐ 34× ☐ = ☐

☐ + ☐ = ☐

12. Two-Digit × Two-Digit

e)

52 × 13

Method 1: Decompose Both

52 = ☐ + ☐ 13 = ☐ + ☐

☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐

☐ + ☐ + ☐ + ☐ = ☐

Method 2: Decompose One

13 = ☐ + ☐

52× ☐ = ☐ 52× ☐ = ☐

☐ + ☐ = ☐

12. Two-Digit × Two-Digit

f)

63 × 11

Method 1: Decompose Both

63 = ☐ + ☐ 11 = ☐ + ☐

☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐ ☐ × ☐ = ☐

☐ + ☐ + ☐ + ☐ = ☐

Method 2: Decompose One

11 = ☐ + ☐

63× ☐ = ☐ 63× ☐ = ☐

☐ + ☐ = ☐