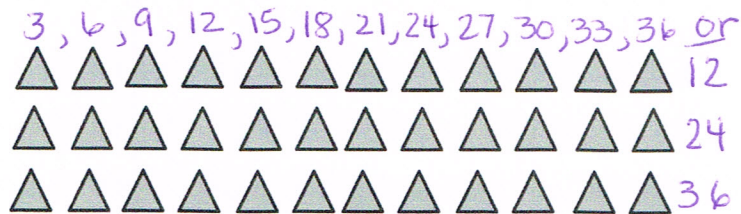


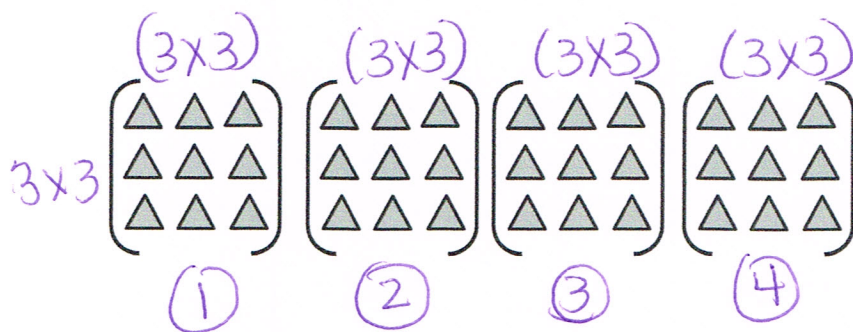
Name _____

Date _____

1. Use the array to complete the equation.

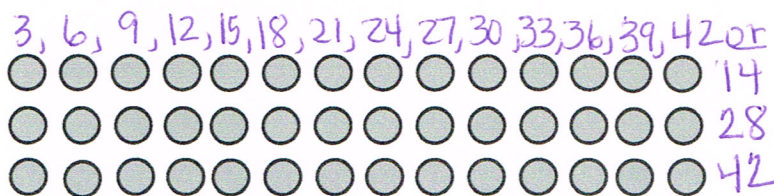


a. $3 \times 12 = 36$

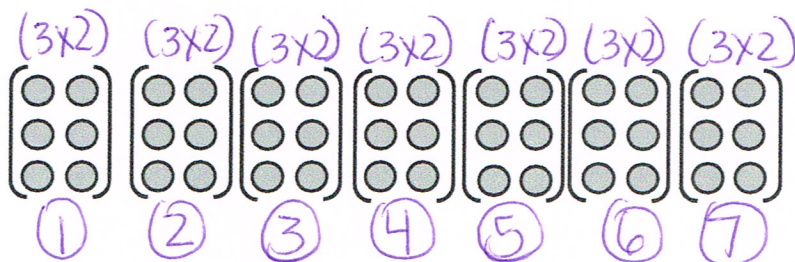


You have 4 groups of
 $\uparrow$
 3×3

b. $(3 \times 3) \times 4$
 $= 9 \times 4$
 $= 36$



c. $3 \times 14 = 42$



You have 7 groups of 3×2
 $\uparrow$

d. $(3 \times 2) \times 7$
 $= 6 \times 7$
 $= 42$

2. Place parentheses in the equations to simplify. Then, solve. The first one has been done for you.

a.

$$\begin{aligned} 3 \times 16 &= 3 \times (2 \times 8) \\ &= (3 \times 2) \times 8 \\ &= \underline{6} \times 8 \end{aligned}$$

48

b.

$$\begin{aligned} 2 \times 14 &= 2 \times (2 \times 7) \\ &= (2 \times 2) \times 7 \\ &= \underline{4} \times 7 \end{aligned}$$

28

c.

$$\begin{aligned} 3 \times 12 &= 3 \times (3 \times 4) \\ &= 3 \times 3 \times 4 \\ &= \underline{9} \times \underline{4} \end{aligned}$$

36

d.

$$\begin{aligned} 3 \times 14 &= 3 \times 2 \times 7 \\ &= 3 \times 2 \times 7 \\ &= \underline{6} \times \underline{7} \end{aligned}$$

42

e.

$$\begin{aligned} 15 \times 3 &= 5 \times 3 \times 3 \\ &= 5 \times 3 \times 3 \\ &= \underline{5} \times \underline{9} \end{aligned}$$

45

f.

$$\begin{aligned} 15 \times 2 &= 5 \times 3 \times 2 \\ &= 5 \times 3 \times 2 \\ &= \underline{5} \times \underline{6} \end{aligned}$$

30

3. Charlotte finds the answer to 16×2 by thinking about 8×4 . Explain her strategy.

$16 \times 2 = 8 \times (2 \times 2)$
Charlotte writes 16×2 as $8 \times 2 \times 2$. Then she places the parentheses around the 2×2 . That's how she gets the related fact 8×4 .

Name _____

Date _____

Solve the following pairs of problems. Circle the pairs where both problems have the same answer.

1. a. $7 + (6 + 4)$

$7 + 10 = 17$

b. $(7 + 6) + 4$

$13 + 4 = 17$

5. a. $(3 + 2) \times 5$

$5 \times 5 = 25$

b. $3 + (2 \times 5)$

$3 + 10 = 13$

2. a. $(3 \times 2) \times 4$

$6 \times 4 = 24$

b. $3 \times (2 \times 4)$

$3 \times 8 = 24$

6. a. $(8 \div 2) \times 2$

$4 \times 2 = 8$

b. $8 \div (2 \times 2)$

$8 \div 4 = 2$

3. a. $(2 \times 1) \times 5$

$2 \times 5 = 10$

b. $2 \times (1 \times 5)$

$2 \times 5 = 10$

7. a. $(9 - 5) + 3$

$4 + 3 = 7$

b. $9 - (5 + 3)$

$9 - 8 = 1$

4. a. $(4 \times 2) \times 2$

$8 \times 2 = 16$

b. $4 \times (2 \times 2)$

$4 \times 4 = 16$

8. a. $(8 \times 5) - 4$

$40 - 4 = 36$

b. $8 \times (5 - 4)$

$8 \times 1 = 8$