

**Good Problems  
Promote Good  
Mathematical  
Thinking**

# Open Tasks

→ Many ways to solve it.

→ Many Solutions

→ Explore different applications  
+ different numbers

**Make the largest number possible  
using all of the numbers below**

**7 5 8 3 2**

Make the smallest number possible  
using all of the numbers below

7 5 8 3 2

0

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~~5~~ ~~8~~ ~~3~~ ~~2~~

Place the numbers so that the sum is the largest value.

$$\begin{array}{r} \boxed{6} \quad \boxed{4} \\ + \quad \boxed{5} \quad \boxed{3} \\ \hline \end{array}$$

Place the numbers so that the sum is the smallest value.

$$\begin{array}{r} \square \square \\ + \square \square \\ \hline \end{array}$$

2 4 6 8

Place the numbers so that the difference is the largest value.

$$\begin{array}{r} \square \square \\ - \square \square \\ \hline \end{array}$$

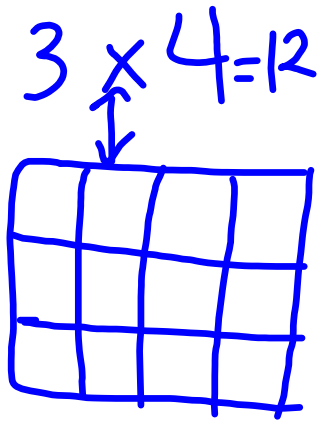
7 5 8 3

Place the numbers so that the difference is the smallest value.

$$\begin{array}{r} \square \square \\ - \square \square \\ \hline \end{array}$$

7 5 8 3

Explore the patterns.



Array

$2 \times 6 = 12$

$3 \times 6 = 12 + 6 = 18$

1	2	3	4	5	6	7	8	9	10
2	4	6	8	10	12	14	16	18	20
3	6	9	12	15	18	21	24	27	30
4	8	12	16	20	24	28	32	36	40
5	10	15	20	25	30	35	40	45	50
6	12	18	24	30	36	42	48	54	60
7	14	21	28	35	42	49	56	63	70
8	16	24	32	40	48	56	64	72	80
9	18	27	36	45	54	63	72	81	90
10	20	30	40	50	60	70	80	90	100

$4 \times 10 = 40$   
 $4 \times 9 = 36$   
 $8 \times 9 = 72$

Double Double

**Explain the pattern.**

$$5 \times 5 = 25$$

$$\underline{4 \times 6 = 24}$$

$$7 \times 7 = 49$$

$$\underline{6 \times 8 = 48}$$

$$6 \times 6 = 36$$

$$\underline{5 \times 7 = 35}$$

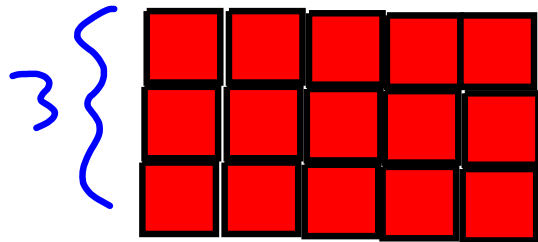
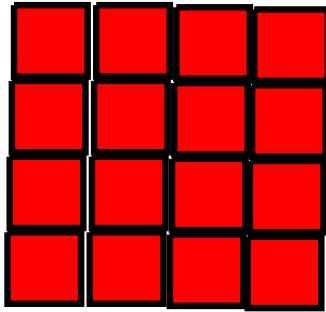
$$8 \times 8 = 64$$

$$\underline{7 \times 9 = 63}$$

**Make other facts that follow the same pattern.**

**Why does this pattern work?**

$$4 \times 4 = 16$$
$$3 \times 5 = 15$$

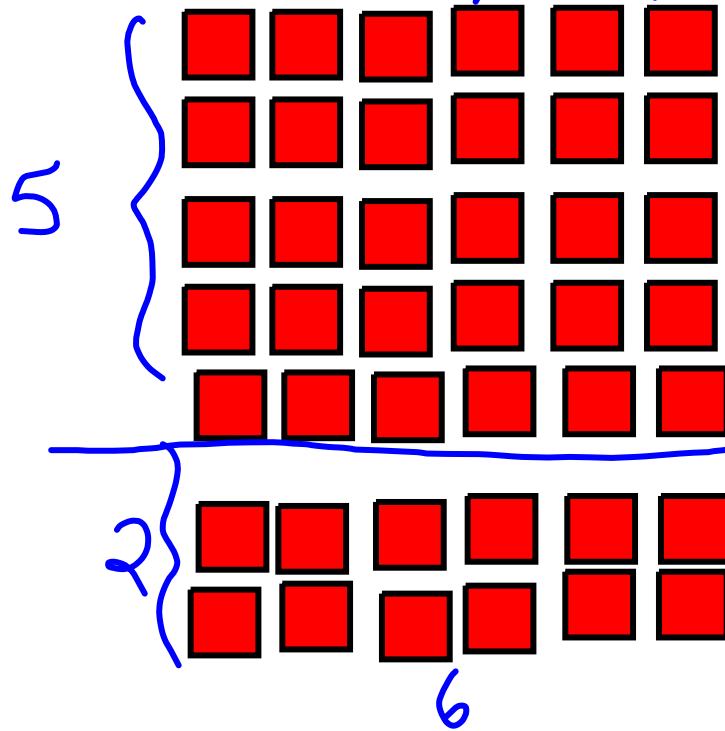


$$7 = 5 + 2$$

$$7 \times 6 = 5 \times 6 + 2 \times 6$$

$$7 \times 6 = 30 + 12$$

$$7 \times 6 = 42$$



Distributive

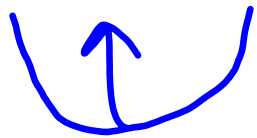
$$7 \times 8$$

$$5 \times 8 + 2 \times 8$$

$$40 + 16$$

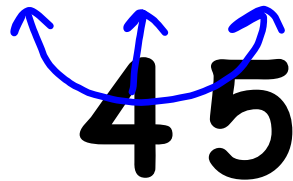
$$56$$

$$\begin{array}{r} 34 \\ \times 11 \\ \hline 374 \end{array}$$



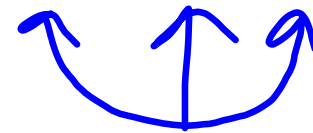
$$\begin{array}{r} 67 \\ \times 11 \\ \hline 737 \end{array}$$

$$\begin{array}{r} 53 \\ \times 11 \\ \hline 583 \end{array}$$



$$\begin{array}{r} 45 \\ \times 11 \\ \hline 495 \end{array}$$

$$\begin{array}{r} 62 \\ \times 11 \\ \hline 682 \end{array}$$



$$\begin{array}{r} 45 \\ \times 11 \\ \hline 495 \end{array}$$