

Lesson #3 Factor Pairs

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Today, we are going to play a game. Before we play this game, we need to first understand how to make lists of factor pairs. A factor pair is two numbers which multiply to a given number.

1) Create the complete list of factor pairs for each number.

a) 24

1, 24
2, 12
3, 8
4, 6

b) 32

1, 32
2, 16
4, 8

c) 45

1, 45
3, 15
5, 9

d) 144

1, 144
2, 72
3, 48
4, 36
6, 24
8, 18
9, 16
12, 12

e) 73

1, 73
That's it.

f) 1890

1, 1890	10, 189	30, 63
2, 945	14, 135	35, 54
3, 630	15, 126	42, 45
5, 378	18, 105	(16)
6, 315	21, 90	
7, 270	27, 70	
9, 210		

g) 80

1, 80
2, 40
4, 20
5, 16
8, 10
(5)

h) 112

1, 112
2, 56
4, 28
7, 16
8, 14
(5)

i) 720

1, 720	12, 60
2, 360	15, 48
3, 240	16, 45
4, 180	18, 40
5, 144	20, 36
6, 120	24, 30
8, 90	
10, 72	

(14)

Now that we see how to create a list of factor pairs, we will now add an element which will have us search for a specific factor pair. In the following examples, you will be given a number to multiply to and a number add to. This means that you need to find a factor pair which both multiplies to and adds to the given numbers. Without further adieu, let's play "Find the Pair!"

2) Find the factor pair that satisfies the given conditions: (NOTE: M=multiplies to, A=adds to).

a) M: 45
A: 18

$$\begin{array}{l} 1, 45 = 45 \\ 3, 15 = 18 \checkmark \\ 5, 9 \end{array}$$

$$(+)(+) = +$$

$$(-)(-) = +$$

b) M: -132
A: 1

$$(+)(-) = -$$

Bigger # is positive
∴ smaller # is negative

$$-1, 132 = 132$$

$$-2, 66 = 66$$

$$-3, 44$$

$$-4, 33$$

$$-6, 22$$

$$-11, 12 = 1$$

Small

Big

c) M: -216
A: 19

↑
more negative

$$1, -216$$

$$2, -108$$

$$3, -72$$

$$4, -54 = -50$$

$$6, -36$$

$$8, -27 = -19$$

d) M: 60
A: -23

$$-1, -60$$

$$-2, -30 = -32$$

$$-3, -20 = -23 \checkmark$$