

FACTOR SET WORKSHEET

The purpose of this exercise is to teach you how to factor numbers by finding factor sets (two numbers, the product of which equals the original number). This method begins with the simplest factor set of any number (example: the first factor set of 32 is 1 and 32); then, if the number itself is even, for the second factor set, you double the 1 and take half of the number itself (example: 2 and 16, then 4 and 8).

There are three types of factor sets you will encounter:

1. Repeating Factor Set

Factor 32

1	32
2	16
4	8
8	4

*when your next factor set is a repeat of the previous factor set, you are done factoring

2. Ending in a Prime Number

Factor 28

1	28
2	14
4	7

*since 7 is a prime number we are done.

3. Non-prime odd number

Factor 60

1	60
2	30
4	15
3	20
6	10
12	5

*when your second column ends in a non-prime odd number, find the next smallest factor of that number not used already and divide the original number by it; since the next smallest factor of 15 is 3, divide 60 by 3 to get 20, then continue to double the first column and take half of the second column until you reach a prime number on the bottom right.

Factor 350

1	350
2	175
5	70
10	35
7	50
14	25

*even though 25 is a non-prime odd number, you have already used the smallest prime factor, 5, above, so you are done.

Always do a quick check for the factor "15." This method will find all of your factors except sometimes "15." If "15" is a factor, continue the method until you reach one of the other stopping points.

FACTOR SET PRACTICE

1. FACTOR 12

2. FACTOR 20

3. FACTOR 35

4. FACTOR 64

5. FACTOR 40

6. FACTOR 26

7. FACTOR 48

8. FACTOR 225

9. FACTOR 100

10. FACTOR 150

FACTOR SET PRACTICE (answer key)

1. FACTOR 12

1	12
2	6
4	3

(both end in primes)

2. FACTOR 20

1	20
2	10
4	5

3. FACTOR 35

1	35
5	7

4. FACTOR 64

1	64
2	32
4	16
8	<u>8</u>

(both of these will repeat)

5. FACTOR 40

1	40
2	20
4	10
8	5

6. FACTOR 26

1	26
2	13

7. FACTOR 48

1	48
2	24
4	12
8	6
16	3

8. FACTOR 225

1	225
3	75
5	45
9	25

(prime factor 5 already used)

9. FACTOR 100

1	100
2	50
4	25
5	20
10	10

10. FACTOR 150

1	150
2	75
3	50
6	25
5	30
10	15