

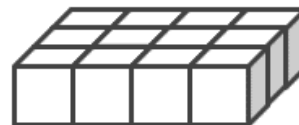
With 12 cubes, you can make 4 different cuboids:



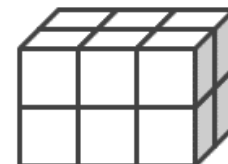
$$1 \times 1 \times 12$$



$$1 \times 2 \times 6$$



$$1 \times 3 \times 4$$



$$2 \times 2 \times 3$$

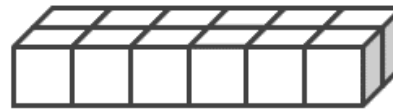
Number of cubes	Possible cuboids	Number of cuboids
8		
9		
10		
11		
12	$1 \times 1 \times 12, 1 \times 2 \times 6, 1 \times 3 \times 4, 2 \times 2 \times 3$	4
13		
14		
15		
16		
17		
18		
19		
20		

Number of cubes	Possible cuboids	Number of cuboids
24		
30		
36		
48		
60		
72		

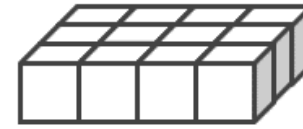
With 12 cubes, you can make 4 different cuboids:



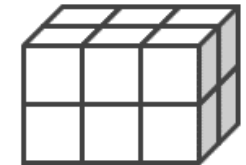
$$1 \times 1 \times 12$$



$$1 \times 2 \times 6$$



$$1 \times 3 \times 4$$



$$2 \times 2 \times 3$$

Number of cubes	Possible cuboids	Number of cuboids
8	$8 \times 1 \times 1, 4 \times 2 \times 1, 2 \times 2 \times 2$	3
9	$9 \times 1 \times 1, 3 \times 3 \times 1$	2
10	$10 \times 1 \times 1, 5 \times 2 \times 1$	2
11	$11 \times 1 \times 1$	1
12	$1 \times 1 \times 12, 1 \times 2 \times 6, 1 \times 3 \times 4, 2 \times 2 \times 3$	4
13	$13 \times 1 \times 1$	1
14	$14 \times 1 \times 1, 7 \times 2 \times 1$	2
15	$15 \times 1 \times 1, 5 \times 3 \times 1$	2
16	$16 \times 1 \times 1, 8 \times 2 \times 1, 4 \times 4 \times 1, 4 \times 2 \times 1$	4
17	$17 \times 1 \times 1$	1
18	$18 \times 1 \times 1, 9 \times 2 \times 1, 6 \times 3 \times 1, 3 \times 3 \times 2$	4
19	$19 \times 1 \times 1$	1
20	$20 \times 1 \times 1, 10 \times 2 \times 1, 5 \times 4 \times 1, 5 \times 2 \times 2$	4

Number of cubes	Possible cuboids	Number of cuboids
24	$24 \times 1 \times 1, 12 \times 2 \times 1, 8 \times 3 \times 1, 6 \times 4 \times 1, 6 \times 2 \times 2, 4 \times 3 \times 2$	6
30	$30 \times 1 \times 1, 15 \times 2 \times 1, 10 \times 3 \times 1, 6 \times 5 \times 1, 5 \times 3 \times 2,$	5
36	$36 \times 1 \times 1, 18 \times 2 \times 1, 12 \times 3 \times 1, 9 \times 4 \times 1, 6 \times 6 \times 1, 9 \times 2 \times 2, 6 \times 3 \times 2, 4 \times 3 \times 3$	8
48	$48 \times 1 \times 1, 24 \times 2 \times 1, 16 \times 3 \times 1, 12 \times 4 \times 1, 8 \times 6 \times 1, 12 \times 2 \times 2, 8 \times 3 \times 2, 6 \times 4 \times 2, 4 \times 4 \times 3$	9
60	$60 \times 1 \times 1, 30 \times 2 \times 1, 20 \times 3 \times 1, 15 \times 4 \times 1, 12 \times 5 \times 1, 10 \times 6 \times 1, 15 \times 2 \times 2, 10 \times 3 \times 2, 6 \times 5 \times 2, 5 \times 4 \times 3$	10
72	$72 \times 1 \times 1, 36 \times 2 \times 1, 24 \times 3 \times 1, 18 \times 4 \times 1, 12 \times 6 \times 1, 9 \times 8 \times 1, 18 \times 2 \times 2, 12 \times 3 \times 2, 9 \times 4 \times 2, 8 \times 3 \times 3, 6 \times 6 \times 2, 6 \times 4 \times 3$	12

12 has 4 factors that are not prime:

Factors of 12: 1, 2, 3, 4, 6, 12

Number	Factors	Number of non-prime factors
8		
9		
10		
11		
12	<i><u>1</u>, 2, 3, <u>4</u>, <u>6</u>, <u>12</u></i>	4
13		
14		
15		
16		
17		
18		
19		
20		

Number	Factors	Number of non-prime factors
24		
30		
36		
48		
60		
72		

12 has 4 factors that are not prime:

Factors of 12: 1, 2, 3, 4, 6, 12

Number	Factors	Number of non-prime factors
8	<u>1</u> , 2, <u>4</u> , <u>8</u>	<b>3</b>
9	<u>1</u> , 3, <u>9</u>	<b>2</b>
10	<u>1</u> , 2, <u>5</u> , <u>10</u>	<b>2</b>
11	<u>1</u> , 11	<b>1</b>
12	<u>1</u> , 2, 3, <u>4</u> , <u>6</u> , <u>12</u>	<b>4</b>
13	<u>1</u> , 13	<b>1</b>
14	<u>1</u> , 2, 7, <u>14</u>	<b>2</b>
15	<u>1</u> , 3, 5, <u>15</u>	<b>2</b>
16	<u>1</u> , 2, <u>4</u> , <u>8</u> , <u>16</u>	<b>4</b>
17	<u>1</u> , 17	<b>1</b>
18	<u>1</u> , 2, 3, <u>6</u> , <u>9</u> , <u>18</u>	<b>4</b>
19	<u>1</u> , 19	<b>1</b>
20	<u>1</u> , 2, <u>4</u> , 5, <u>10</u> , <u>20</u>	<b>4</b>

Number	Factors	Number of non-prime factors
24	<u>1</u> , 2, 3, <u>4</u> , <u>6</u> , <u>8</u> , <u>12</u> , <u>24</u>	<b>6</b>
30	<u>1</u> , 2, 3, 5, <u>6</u> , <u>10</u> , <u>15</u> , <u>30</u>	<b>5</b>
36	<u>1</u> , 2, 3, <u>4</u> , <u>6</u> , <u>9</u> , <u>12</u> , <u>18</u> , <u>36</u>	<b>7</b>
48	<u>1</u> , 2, 3, <u>4</u> , <u>6</u> , <u>8</u> , <u>12</u> , <u>16</u> , <u>24</u> , <u>48</u>	<b>8</b>
60	<u>1</u> , 2, 3, <u>4</u> , 5, <u>6</u> , <u>10</u> , <u>12</u> , <u>15</u> , <u>20</u> , <u>30</u> , <u>60</u>	<b>9</b>
72	<u>1</u> , 2, 3, <u>4</u> , <u>6</u> , <u>8</u> , <u>9</u> , <u>12</u> , <u>18</u> , <u>24</u> , <u>36</u> , <u>72</u>	<b>10</b>