

Prime and Composite Numbers

Standard: 5.3a- The student will identify and describe the characteristics of prime and composite numbers

What you need to be able to do:

- Identify prime numbers less than 100
- Identify composite numbers less than or equal to 100
- Demonstrate or explain why a number is prime or composite

Key Vocabulary:

Factor- a whole number that can be multiplied times another whole number (also a factor) to create a product

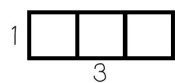
Product- the result of multiplying two factors together

Prime number- a number with exactly two factors: one and itself

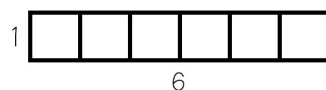
Composite number- a number with three or more factors

Essential Understandings:

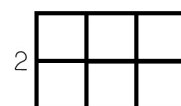
- Prime and composite numbers can be represented by rectangular arrays or models.
- Prime numbers can only be represented by one rectangular array (3 can be represented by 3×1 or 1×3 : despite being in a different order, these are the same array)
- A composite number can always be represented by more than one rectangular array (6 can be represented by 1×6 or 2×3)
- The number one is neither prime nor composite.

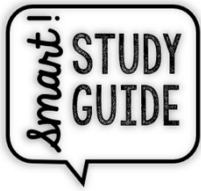


3 = Prime
1 array: 1×3
2 factors: 1, 3



6 = Composite
2 arrays: 1×6 , 2×3
4 factors: 1, 2, 3, 6





To see how to do the first two sample problems with a calculator, scan the QR codes



EXAMPLE A



EXAMPLE B

HINT: When scanning a particular QR code, cover the other QR codes with your hand so they don't accidentally scan.

So how do you find out if a number is prime or composite?

1. Factor out the number using your preferred method (t-chart, rainbow, or using a calculator, if allowed).
2. Count the factors.
3. If only 2 factors, one and the number itself, the number is prime. If 3 or more factors, the number is composite.

Examples:

A. Is 15 prime or composite?

$$1. \begin{array}{r|l} 15 & \\ \hline 1 & 15 \\ 3 & 5 \end{array} \quad \text{or} \quad 1, 3, 5, 15$$

2. 15 has 4 factors: 1, 3, 5, 15

3. 15 is composite.

B. Is 9 prime or composite?

$$1. \begin{array}{r|l} 9 & \\ \hline 1 & 9 \\ 3 & 3 \end{array} \quad \text{or} \quad 1, 3, 9$$

2. 9 has 3 factors: 1, 3, 9

3. 9 is composite.

C. Is 5 prime or composite?

$$1. \begin{array}{r|l} 5 & \\ \hline 1 & 5 \end{array} \quad \text{or} \quad 1, 5$$

2. 5 has 2 factors: 1 and itself, 5

3. 5 is prime.

To see these problems modeled with arrays, scan the QR codes below.



EXAMPLE A



EXAMPLE B



EXAMPLE C

Now you try it!



1. Is the number 33 prime or composite?



2. Is the number 57 prime or composite?



3. Is the number 19 prime or composite?



4. Is the number 91 prime or composite?



5. Circle all of the prime numbers. Underline all of the composite numbers. Put an x through any numbers that are neither prime nor composite.

1 2 11 27 37 41 75 87 93 97



6. Which list(s) contain(s) 2 composite numbers and 1 prime?

a) 49, 35, 18

b) 2, 14, 17

c) 57, 67, 91

d) 23, 87, 93

e) 71, 63, 37

To see how to do a problem, scan the QR code next to the problem you need help with.

Just interested in the answers? Scan here:

