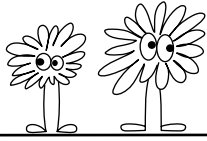
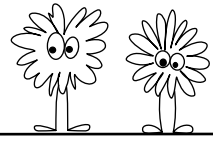


FRACTION NINJA BOOTCAMP LEVEL 2





COMMON FACTORS



For each pair of numbers, find the greatest common factor.

24, 34

56, 35

80, 55

60, 42

90, 81

54, 84

Here is a cool way to find the greatest common factor of two numbers by writing each number as a product of prime facts. (Prime numbers can't be broken down into a product of smaller numbers.)

To get the greatest common factor of 150 and 400, we

1. Write each number as a product of primes.

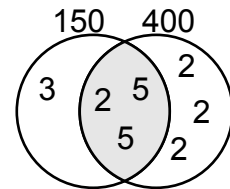
$$150 = 2 \times 3 \times 5 \times 5 \quad \text{and} \quad 400 = 2 \times 2 \times 2 \times 2 \times 5 \times 5$$

2. Find all the prime factors that were in common.

$$150 = \underline{2} \times 3 \times \underline{5} \times \underline{5} \quad \text{and} \quad 400 = \underline{2} \times 2 \times 2 \times 2 \times \underline{5} \times \underline{5}$$

3. Multiply out the prime factors that were in common to get the greatest common factor.

$$2 \times 5 \times 5 = 50 \text{ is the greatest common factor of 150 and 400.}$$

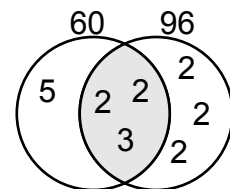


Let's try this trick to find the greatest common factor of 60 and 96.

1. $60 = 2 \times 2 \times 3 \times 5$ and $96 = 2 \times 2 \times 2 \times 2 \times 2 \times 3$

2. The factors in common are 2, 2, and 3.

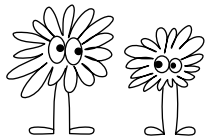
3. The greatest common factor of 60 and 96 is $2 \times 2 \times 3 = 12$.



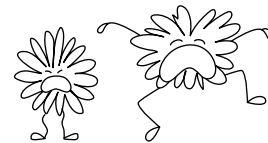
For each pair of numbers, find the greatest common factor. Can you do it using the technique described above?

240, 75

112, 128



SIMPLIFYING FRACTIONS



$$\frac{8}{24} =$$

$$\frac{40}{48} =$$

$$\frac{21}{33} =$$

$$\frac{54}{72} =$$

$$\frac{66}{70} =$$

$$\frac{56}{77} =$$

$$\frac{32}{80} =$$

$$\frac{25}{80} =$$

$$\frac{8}{28} =$$

$$\frac{20}{25} =$$

$$\frac{12}{36} =$$

$$\frac{15}{50} =$$

$$\frac{13}{26} =$$

$$\frac{6}{54} =$$

$$\frac{18}{45} =$$

$$\frac{64}{100} =$$

$$\frac{45}{80} =$$

$$\frac{15}{33} =$$

$$\frac{36}{56} =$$

$$\frac{12}{66} =$$

$$\frac{24}{100} =$$

$$\frac{22}{30} =$$

$$\frac{48}{100} =$$

$$\frac{16}{26} =$$

$$\frac{62}{100} =$$

$$\frac{28}{56} =$$

$$\frac{36}{44} =$$

$$\frac{72}{80} =$$

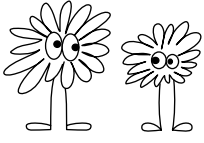
$$\frac{6}{46} =$$

$$\frac{60}{144} =$$

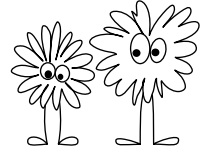
Simplified Fraction Maze

Travel through the maze by only visiting fractions that are in simplified form.

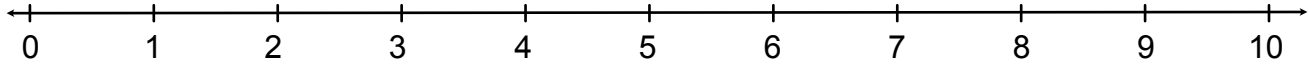
$\frac{4}{22}$	$\frac{9}{86}$	$\frac{17}{60}$	$\frac{3}{76}$	$\frac{13}{56}$	$\frac{9}{109}$	$\frac{7}{38}$	$\frac{4}{49}$	$\frac{59}{77}$	$\frac{3}{6}$	$\frac{63}{72}$	$\frac{4}{5}$	exit →
$\frac{50}{75}$	$\frac{2}{75}$	$\frac{14}{35}$	$\frac{2}{62}$	$\frac{65}{85}$	$\frac{70}{77}$	$\frac{10}{25}$	$\frac{4}{10}$	$\frac{12}{37}$	$\frac{52}{89}$	$\frac{49}{63}$	$\frac{7}{95}$	
$\frac{25}{45}$	$\frac{33}{100}$	$\frac{15}{26}$	$\frac{1}{96}$	$\frac{38}{53}$	$\frac{3}{8}$	$\frac{99}{101}$	$\frac{36}{61}$	$\frac{20}{30}$	$\frac{1}{2}$	$\frac{5}{156}$	$\frac{49}{92}$	
$\frac{16}{18}$	$\frac{26}{66}$	$\frac{19}{38}$	$\frac{13}{39}$	$\frac{20}{42}$	$\frac{90}{108}$	$\frac{15}{42}$	$\frac{42}{81}$	$\frac{3}{34}$	$\frac{21}{56}$	$\frac{55}{66}$	$\frac{45}{50}$	
$\frac{33}{43}$	$\frac{1}{11}$	$\frac{21}{26}$	$\frac{6}{11}$	$\frac{33}{45}$	$\frac{18}{33}$	$\frac{10}{18}$	$\frac{3}{33}$	$\frac{13}{59}$	$\frac{43}{70}$	$\frac{8}{83}$	$\frac{56}{75}$	
$\frac{4}{21}$	$\frac{15}{21}$	$\frac{33}{55}$	$\frac{45}{49}$	$\frac{42}{49}$	$\frac{20}{55}$	$\frac{12}{24}$	$\frac{9}{90}$	$\frac{5}{15}$	$\frac{65}{80}$	$\frac{36}{81}$	$\frac{28}{41}$	
$\frac{13}{15}$	$\frac{24}{44}$	$\frac{7}{69}$	$\frac{17}{31}$	$\frac{62}{66}$	$\frac{36}{54}$	$\frac{6}{8}$	$\frac{60}{75}$	$\frac{100}{110}$	$\frac{81}{90}$	$\frac{4}{28}$	$\frac{22}{25}$	
$\frac{3}{7}$	$\frac{88}{90}$	$\frac{3}{56}$	$\frac{32}{58}$	$\frac{42}{48}$	$\frac{8}{18}$	$\frac{21}{42}$	$\frac{28}{32}$	$\frac{11}{66}$	$\frac{6}{32}$	$\frac{16}{24}$	$\frac{3}{83}$	
enter → $\frac{1}{5}$	$\frac{30}{42}$	$\frac{29}{34}$	$\frac{3}{14}$	$\frac{5}{18}$	$\frac{24}{43}$	$\frac{36}{49}$	$\frac{17}{99}$	$\frac{12}{67}$	$\frac{7}{76}$	$\frac{3}{5}$	$\frac{1}{99}$	



MIXED NUMBERS ON THE NUMBER LINE



Label each number on the number line.



$2\frac{1}{2}$

$5\frac{1}{3}$

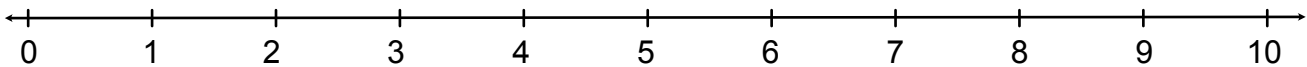
$1\frac{2}{5}$

$7\frac{5}{6}$

$4\frac{1}{2}$

$6\frac{3}{4}$

Label each number on the number line.



$4\frac{1}{4}$

$9\frac{2}{3}$

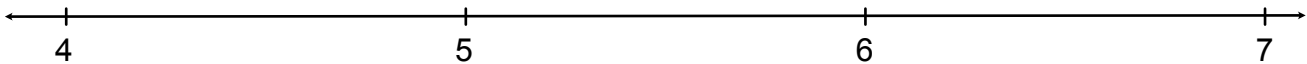
$2\frac{3}{5}$

$1\frac{1}{3}$

$8\frac{2}{5}$

$5\frac{1}{4}$

Label each number on the number line.



$5\frac{2}{3}$

$6\frac{5}{8}$

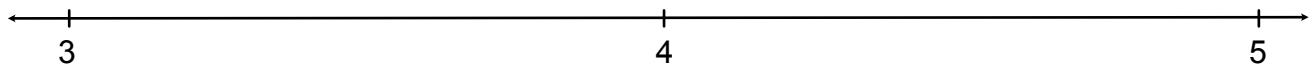
$4\frac{2}{5}$

$5\frac{1}{4}$

$6\frac{1}{3}$

$5\frac{3}{7}$

Label each number on the number line.



$3\frac{6}{7}$

$4\frac{1}{8}$

$4\frac{5}{6}$

$4\frac{2}{5}$

$3\frac{3}{4}$

$4\frac{1}{2}$

Inches are a unit of measure that usually gets broken up into 16 equal pieces. Below is a ruler measured in inches. Label each of the arrows with the appropriate fraction. (Be sure to simplify the fraction.)



Centimeters are a unit of measure that usually gets broken up into 10 equal pieces (called millimeters). Below is a 10-centimeter ruler that has locations marked with arrows. Label each arrow with the appropriate fraction. (Be sure to simplify the fraction.)



Do you prefer inches or centimeters as a unit of measurement? Explain why.

CONVERTING FRACTIONS TO MIXED NUMBERS

Convert each fraction to a mixed number.

$$\frac{25}{3}$$

$$\frac{29}{5}$$

$$\frac{66}{9}$$

$$\frac{43}{4}$$

$$\frac{51}{7}$$

$$\frac{37}{3}$$

$$\frac{60}{11}$$

$$\frac{60}{8}$$

$$\frac{93}{12}$$

$$\frac{81}{10}$$

$$\frac{19}{4}$$

$$\frac{31}{7}$$

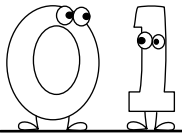
Convert each fraction to a mixed number.

$$\frac{257}{3}$$

$$\frac{214}{7}$$

$$\frac{3,434}{5}$$

$$\frac{123,456,789}{10}$$



CONVERTING MIXED NUMBERS TO FRACTIONS

Convert each mixed number to a fraction.

$$11\frac{1}{2}$$

$$20\frac{1}{3}$$

$$6\frac{3}{5}$$

$$8\frac{5}{6}$$

$$12\frac{3}{7}$$

$$15\frac{2}{3}$$

$$5\frac{9}{10}$$

$$9\frac{6}{11}$$

$$1\frac{13}{20}$$

$$6\frac{2}{7}$$

$$4\frac{11}{12}$$

$$20\frac{3}{4}$$

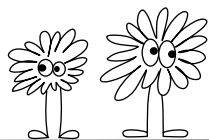
Convert each mixed number to a fraction.

$$125\frac{2}{5}$$

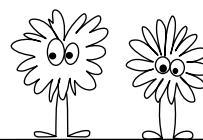
$$100\frac{7}{12}$$

$$136\frac{72}{73}$$

$$99\frac{23}{101}$$



COMPARING FRACTIONS



In each box, declare whether the fractions are "=", "<", or ">" to each other.

$$\frac{8}{24} \square \frac{9}{25}$$

$$\frac{6}{32} \square \frac{12}{16}$$

$$\frac{14}{50} \square \frac{21}{60}$$

$$\frac{45}{54} \square \frac{10}{12}$$

$$\frac{21}{35} \square \frac{3}{5}$$

$$\frac{15}{35} \square \frac{5}{11}$$

$$\frac{36}{88} \square \frac{10}{25}$$

$$\frac{24}{36} \square \frac{12}{18}$$

$$\frac{11}{28} \square \frac{4}{14}$$

$$\frac{12}{24} \square \frac{22}{44}$$

$$\frac{14}{22} \square \frac{2}{3}$$

$$\frac{35}{40} \square \frac{9}{10}$$

$$\frac{6}{11} \square \frac{30}{55}$$

$$\frac{4}{48} \square \frac{10}{80}$$

$$\frac{23}{29} \square \frac{31}{41}$$

$$\frac{20}{120} \square \frac{6}{40}$$

$$\frac{26}{52} \square \frac{3}{6}$$

$$\frac{22}{24} \square \frac{23}{25}$$

Place the following numbers in ascending order (from least to greatest).

$$\frac{3}{7} \quad \frac{5}{6} \quad \frac{1}{2} \quad \frac{2}{5} \quad \frac{4}{9} \quad \frac{5}{8}$$

Place the following numbers in ascending order (from least to greatest).

$$4\frac{11}{12} \quad 5\frac{1}{4} \quad 6\frac{4}{7} \quad 4\frac{1}{3} \quad 5\frac{5}{6} \quad 4\frac{3}{7}$$

Place the following numbers in ascending order (from least to greatest).

$$\frac{43}{7} \quad \frac{15}{2} \quad \frac{35}{4} \quad \frac{27}{6} \quad \frac{77}{12} \quad \frac{53}{9}$$

Place the following numbers in ascending order (from least to greatest).

$$6\frac{4}{7} \quad \frac{60}{9} \quad 8\frac{1}{4} \quad \frac{240}{30} \quad \frac{77}{10} \quad 6\frac{11}{12}$$