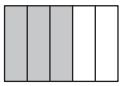
10. [Fractions]

Skill 10.1 Illustrating proper fractions.

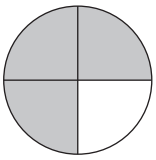
- Count the number of shaded parts.
- Count the total number of parts.
- Write the number of shaded parts over the total number of parts.

PROPER FRACTION



$\frac{3}{5}$ — *numerator (the number of shaded parts)*; *denominator (the number of total parts)*

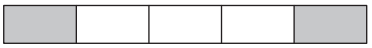
Q. What fraction of the circle is shaded?



A. $\frac{3}{4}$

The circle is divided into 4 equal parts so the denominator of the fraction is 4.
Only 3 parts of the circle are shaded so the numerator is 3.
The fraction of the circle that is shaded is three fourths or $\frac{3}{4}$.

a) What fraction of the bar is shaded?

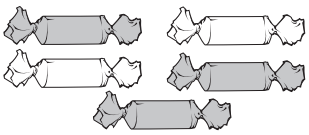


$\frac{2}{5}$

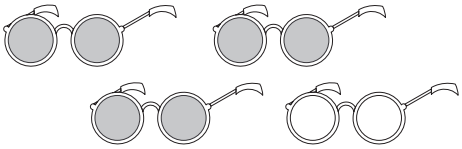
b) What fraction of the bar is shaded?

c) What fraction of the bar is shaded?

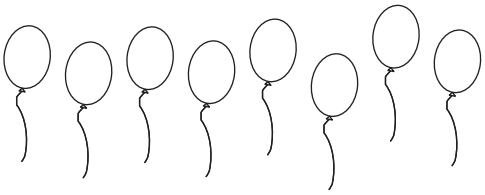
d) What fraction of this group of lollies is shaded?



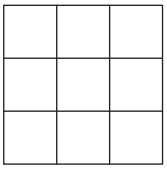
e) What fraction of this group of sunglasses is shaded?



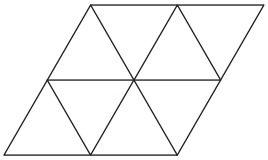
f) Shade in $\frac{5}{8}$ of this group of balloons.



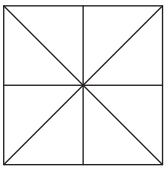
g) Shade in $\frac{4}{9}$ of this square.



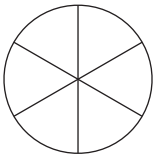
h) Shade in $\frac{3}{8}$ of this parallelogram.



i) Shade in $\frac{5}{8}$ of this square.



j) Shade in $\frac{1}{6}$ of this circle.



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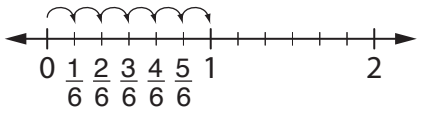
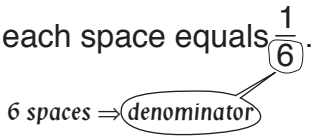
Skill 10.2 Reading a fraction on a number line.

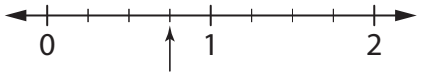
- Count the number of spaces between two consecutive whole numbers.
  The number of spaces tells you the value of the denominator.

  Example: If there are 6 spaces between the whole numbers, then each space equals $\frac{1}{6}$.



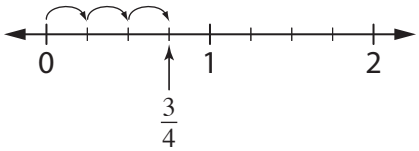


Q. Name the fraction shown by the arrow on the number line.

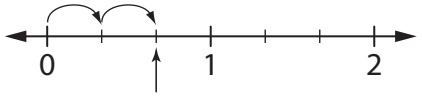


A. ***3/4***

There are four spaces between 0 and 1.
Each space equals $\frac{1}{4}$.
The arrow points to $\frac{3}{4}$.

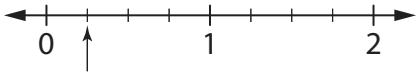


a) Name the fraction shown by the arrow on the number line.

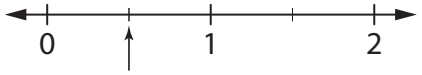


$\frac{2}{3}$

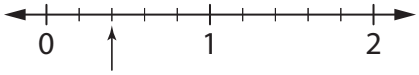
b) Name the fraction shown by the arrow on the number line.



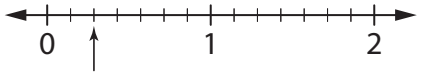
c) Name the fraction shown by the arrow on the number line.



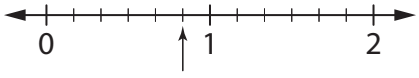
d) Name the fraction shown by the arrow on the number line.



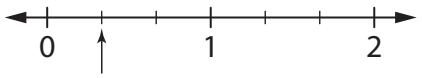
e) Name the fraction shown by the arrow on the number line.



f) Name the fraction shown by the arrow on the number line.

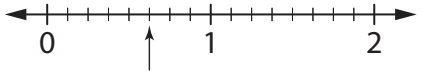


g) Name the fraction shown by the arrow on the number line.

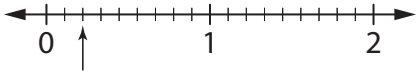


h) Name the fraction shown by the arrow on the number line.

i) Name the fraction shown by the arrow on the number line.



j) Name the fraction shown by the arrow on the number line.



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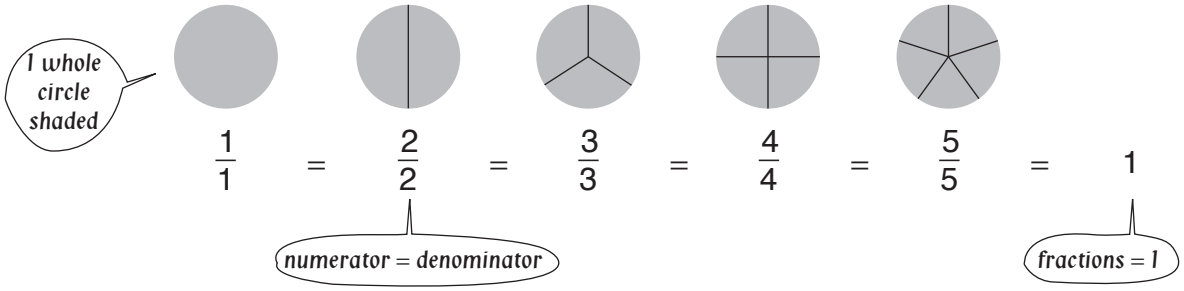
Skill 10.3 Writing 1 as a fraction.



Hint: A fraction equals 1 if the numerator is the same as the denominator.

Q. Which of the following equal 1?
A) $\frac{3}{3}$ B) $\frac{4}{3}$ C) $\frac{2}{3}$ D) $\frac{4}{4}$

A. ***A** and **D***

The only fractions in which the numerator is the same as the denominator are $\frac{3}{3}$ and $\frac{4}{4}$

$\frac{3}{3} = 1$ (three thirds make a whole)

$\frac{4}{4} = 1$ (four fourths or quarters make a whole)

a) Which of the following equal 1?
A) $\frac{3}{3}$ B) $\frac{1}{8}$ C) $\frac{8}{8}$ D) $\frac{3}{8}$

A and C

b) Which of the following equal 1?
A) $\frac{5}{2}$ B) $\frac{2}{2}$ C) $\frac{1}{2}$ D) $\frac{5}{5}$

and

c) Which of the following equal 1?
A) $\frac{6}{6}$ B) $\frac{4}{4}$ C) $\frac{5}{8}$ D) $\frac{4}{3}$

and

d) Which of the following equal 1?
A) $\frac{9}{7}$ B) $\frac{1}{9}$ C) $\frac{7}{7}$ D) $\frac{9}{9}$

and

e) Write a fraction equal to 1 that has a denominator of 8.

f) Write a fraction equal to 1 that has a denominator of 7.

g) Write a fraction equal to 1 that has a denominator of 5.

h) Write a fraction equal to 1 that has a denominator of 9.

i) Write a fraction equal to 1 that has a denominator of 12.

j) Write a fraction equal to 1 that has a denominator of 4.

k) Write a fraction equal to 1 that has a denominator of 15.

l) Write a fraction equal to 1 that has a denominator of 3.

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Skill 10.4 Finding the remaining fraction from a whole.

ONE WHOLE is made out of:

two halves	three thirds	four quarters	five fifths	six sixths	seven sevenths	eight eighths	nine ninths
$\frac{2}{2}$	$\frac{3}{3}$	$\frac{4}{4}$	$\frac{5}{5}$	$\frac{6}{6}$	$\frac{7}{7}$	$\frac{8}{8}$	$\frac{9}{9}$

- Subtract the fraction from the whole amount.

Q. If one third of the birthday cake was eaten, what fraction of the cake remains?

A. *one whole – one third =* $\frac{2}{3}$

Three thirds make the cake. If one third was eaten, there are two thirds left.

a) Lou has painted one half of the wall. What fraction of the wall is left to paint?

one whole – one half = $\frac{1}{2}$

b) Luke has spent one sixth of his pocket money. What fraction of the money is left?

.....

c) Three quarters of the lesson is over. What fraction of the lesson remains?

.....

d) If three fifths of the show is over, what fraction of the performance is left?

.....

e) If two sevenths of the students are boys, what fraction of the students are girls?

.....

f) If two thirds of the birthday cake was eaten, what fraction of the cake remains?

.....

g) Dad finished unpacking three eighths of the box. What fraction of the box is left to unpack?

.....

h) Laura learnt seven tenths of the song on the piano. What fraction of the song is left to learn?

.....

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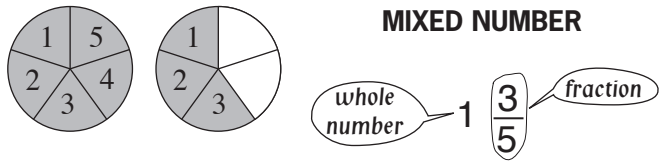
Skill 10.5 Recognising mixed numbers.



Recognising mixed numbers

To name the whole number:

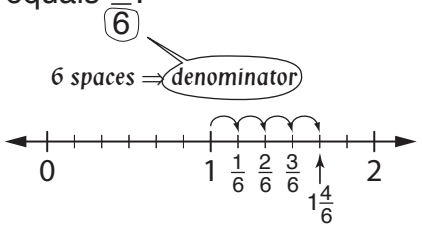
- Count the fully shaded shapes.

To name the fraction:

- Count the shaded parts of the last shape.
- Count the total parts of the last shape.
- Write the shaded parts over the total parts.

Reading mixed numbers on a number line

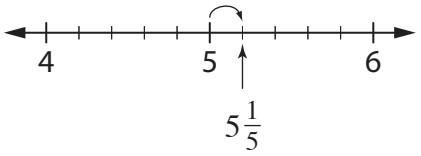
- Count the number of spaces between two consecutive whole numbers.
  The number of spaces tells you the value of the denominator.
  Example: If there are 6 spaces between the whole numbers, then each space equals $\frac{1}{6}$.



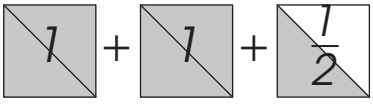
Q. Name the mixed number shown by the arrow on the number line.

A. $5\frac{1}{5}$

There are five spaces between 5 and 6. Each space equals $\frac{1}{5}$. The arrow points to $5\frac{1}{5}$.

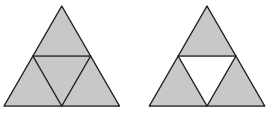


a) Name the mixed number represented by these shaded squares.

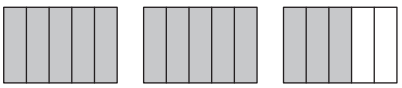


$2\frac{1}{2}$

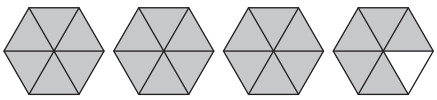
b) Name the mixed number represented by these shaded triangles.



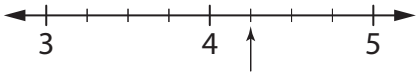
c) Name the mixed number represented by these shaded rectangles.



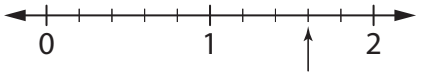
d) Name the mixed number represented by these shaded hexagons.



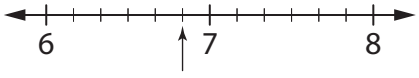
e) Name the mixed number shown by the arrow on the number line.



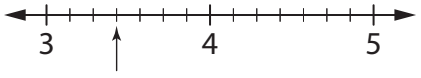
f) Name the mixed number shown by the arrow on the number line.



g) Name the mixed number shown by the arrow on the number line.



h) Name the mixed number shown by the arrow on the number line.



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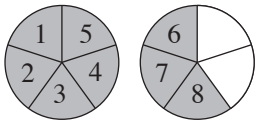
Skill 10.6 Converting mixed numbers to improper fractions.

- Consider the mixed number as two bits:
  a whole number
  a proper fraction
- Shade whole shapes to match the whole number.
- Partially shade the last shape to match the fraction.



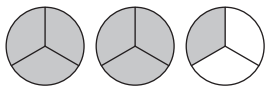
$1\frac{3}{5} = \frac{8}{5}$ **IMPROPER FRACTION**

numerator - 8 parts count

denominator - 5 equal parts in one whole

Q. Shade the circles to show that $2\frac{1}{3} = \frac{7}{3}$

A.

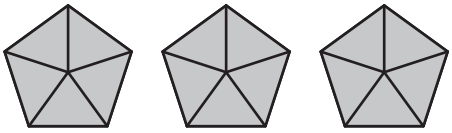


$2\frac{1}{3} = 1 + 1 + \frac{1}{3}$

$\frac{7}{3} = \frac{3}{3} + \frac{3}{3} + \frac{1}{3}$

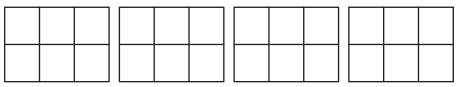
Shade two whole circles and a third of the remaining circle.
In total 7 thirds have been shaded.
This shows that $2\frac{1}{3} = \frac{7}{3}$

a) Shade the pentagons to show that $3 = \frac{15}{5}$

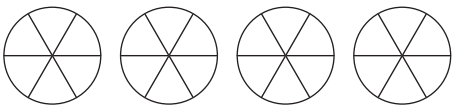


b) Shade the circles to show that $2\frac{2}{3} = \frac{8}{3}$

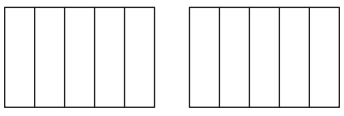
c) Shade the rectangles to show that $4 = \frac{24}{6}$



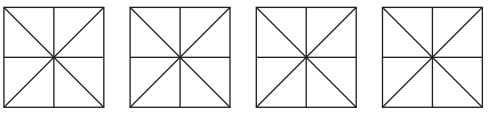
d) Shade the circles to show that $3\frac{1}{6} = \frac{19}{6}$



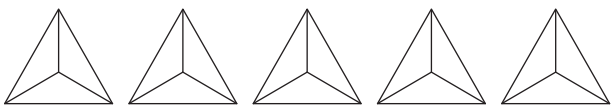
e) Shade the rectangles to show that $1\frac{3}{5} = \frac{8}{5}$



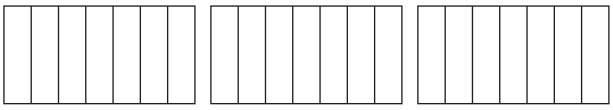
f) Shade the squares to show that $3\frac{5}{8} = \frac{29}{8}$



g) Shade the triangles to show that $4\frac{2}{3} = \frac{14}{3}$



h) Shade the rectangles to show that $2\frac{5}{7} = \frac{19}{7}$



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Skill 10.7 Modelling addition and subtraction of fractions with the same denominators, by using parts of a whole.

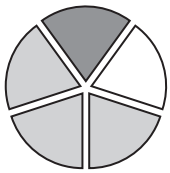
To add two fractions by using parts of a whole

- Colour the fraction bar to represent the second fraction.
- Count the number of shaded parts.
- Write this number as the top number of the result.
- Count the total number of parts.
- Write this number as the bottom number of the result.

To subtract two fractions by using parts of a whole

- Count the total number of light shaded parts.
- Write this number as the top number of the result.
- Count the total number of parts.
- Write this number as the bottom number of the result.

Q. Complete the subtraction.

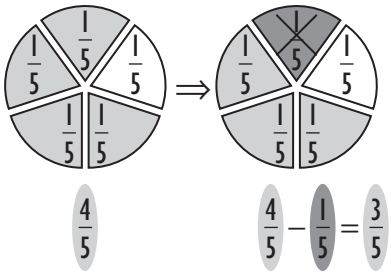


$\frac{4}{5} - \frac{1}{5} =$

A. $\frac{4}{5} - \frac{1}{5} =$

$= \frac{4}{5} - \frac{1}{5} =$

$= \frac{3}{5}$



a) Shade to complete the sum.

$\frac{3}{8} + \frac{2}{8} = \frac{5}{8}$

b) Shade to complete the sum.

$\frac{3}{4} + \frac{1}{4} =$ ☐

c) Shade to complete the sum.

$\frac{1}{6} + \frac{3}{6} =$ ☐

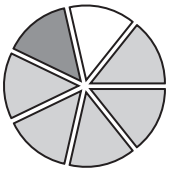
d) Shade to complete the sum.

$\frac{7}{10} + \frac{1}{10} =$ ☐

e) Complete the subtraction.

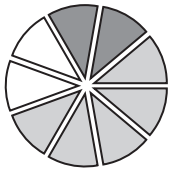
$\frac{5}{8} - \frac{2}{8} =$ ☐

f) Complete the subtraction.



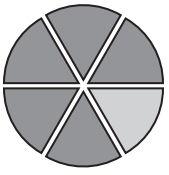
$\frac{6}{7} - \frac{1}{7} =$ ☐

g) Complete the subtraction.



$\frac{7}{9} - \frac{2}{9} =$ ☐

h) Complete the subtraction.



$\frac{6}{6} - \frac{5}{6} =$ ☐

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Skill 10.8 Comparing two fractions with the same denominators.

Using fraction bars

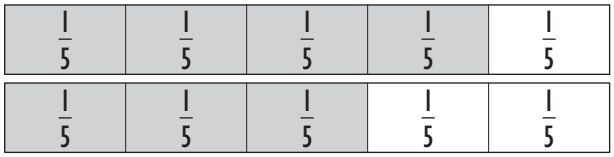
- Compare the size of the two shaded areas.
- Use < if the area showing the first fraction is smaller than the area showing the second fraction.
- Use = if the areas are equal.
- Use > if the area showing the first fraction is larger than the area showing the second fraction.

Using number lines

- Compare the position of the fractions on the number line.
- Use < if the first fraction is to the left of the second fraction on the number line.
- Use = if the two fractions are at the same point on the number line.
- Use > if the first fraction is to the right of the second fraction on the number line.

Hint: The fraction with the larger numerator is larger.

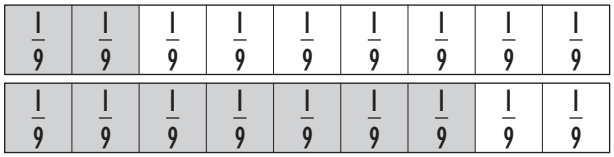
Q. Use <, = or > to make this true.



$\frac{4}{5}$ ☐ $\frac{3}{5}$

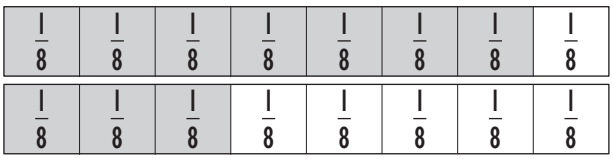
A. $\frac{4}{5} > \frac{3}{5}$ 4 is greater than 3.

a) Use <, = or > to make this true.



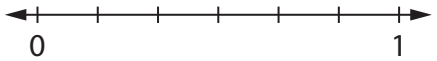
$\frac{2}{9}$ < $\frac{7}{9}$

b) Use <, = or > to make this true.



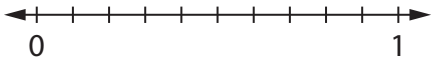
$\frac{7}{8}$ ☐ $\frac{3}{8}$

c) Show with arrows the fractions $\frac{4}{6}$ and $\frac{1}{6}$ on the number line.
Which fraction is greater?



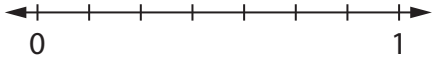
☐

c) Show with arrows the fractions $\frac{7}{10}$ and $\frac{5}{10}$ on the number line.
Which fraction is greater?



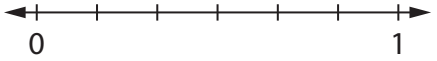
☐

e) Show with arrows the fractions $\frac{5}{7}$ and $\frac{1}{7}$ on the number line.
Which fraction is greater?



☐

f) Show with arrows the fractions $\frac{3}{6}$ and $\frac{5}{6}$ on the number line.
Which fraction is greater?



☐

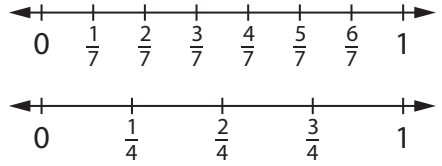
Skill 10.9 Comparing two fractions with the same numerators.

- Compare the position of the fractions on the number line.
- Use < if the first fraction is to the left of the second fraction on the number line.
- Use = if the two fractions are at the same point on the number line.
- Use > if the first fraction is to the right of the second fraction on the number line.

Hint: The fraction with the smaller denominator is larger.

<	is less than
=	is equal to
>	is greater than

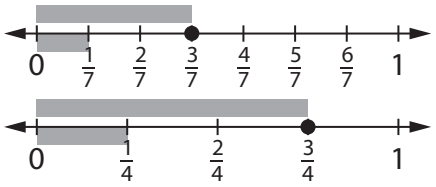
Q. Use <, = or > to make this true.



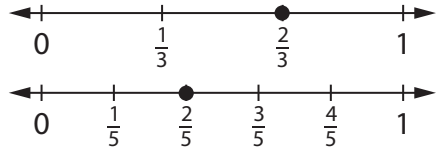
$\frac{3}{7}$ ☐ $\frac{3}{4}$

A. $\frac{3}{7} < \frac{3}{4}$

One seventh is smaller than one fourth. Therefore three sevenths is less than three fourths.

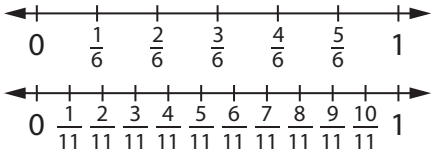


a) Use <, = or > to make this true.



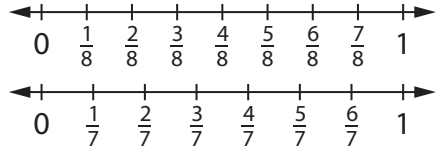
$\frac{2}{3}$ > $\frac{2}{5}$

b) Use <, = or > to make this true.



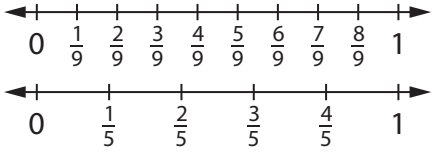
$\frac{5}{6}$ ☐ $\frac{5}{11}$

c) Use <, = or > to make this true.



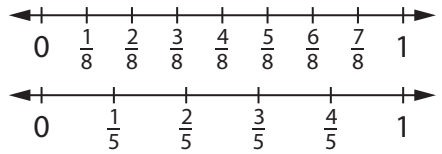
$\frac{3}{8}$ ☐ $\frac{3}{7}$

d) Use <, = or > to make this true.



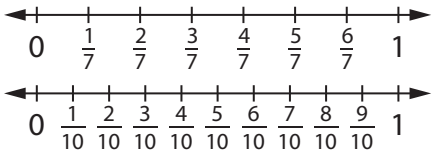
$\frac{2}{9}$ ☐ $\frac{2}{5}$

e) Use <, = or > to make this true.



$\frac{4}{8}$ ☐ $\frac{4}{5}$

f) Use <, = or > to make this true.



$\frac{6}{7}$ ☐ $\frac{6}{10}$

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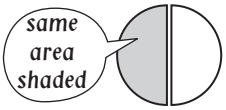
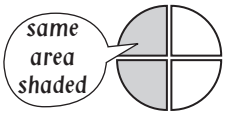
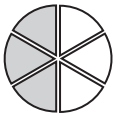
Skill 10.10 Completing equivalent fractions (1).



2 equal parts
1 part shaded
$\frac{1}{2}$ of the circle is shaded



4 equal parts
2 parts shaded
$\frac{2}{4}$ of the circle is shaded



6 equal parts
3 parts shaded
$\frac{3}{6}$ of the circle is shaded

8 equal parts
4 parts shaded
$\frac{4}{8}$ of the circle is shaded

The fractions $\frac{1}{2}$, $\frac{2}{4}$, $\frac{3}{6}$ and $\frac{4}{8}$ are all equivalent because they represent the same amount: $\frac{1}{2}=\frac{2}{4}=\frac{3}{6}=\frac{4}{8}$

To find an equivalent fraction by drawing a diagram

- Draw two fraction bars one under the other.
- Divide each box into equal parts, as shown by the denominators.
- Shade both fraction bars to show the given fraction.
- Read the second fraction from the bottom fraction bar.

To find an equivalent fraction from a given diagram

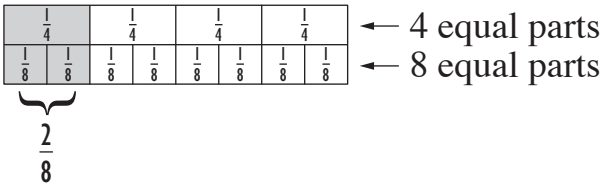
- Read the shaded fractions from both fraction bars.
- Complete the missing number in one of the fractions.

Q. Shade the bars to complete the equivalent fractions.

$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$		$\frac{1}{4}$	
$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{1}{8}$

$\frac{1}{4} = \frac{\square}{8}$

A. $\frac{1}{4}=\frac{2}{8}$



a) Shade the bars to complete the equivalent fractions.

$\frac{1}{2}$						$\frac{1}{2}$					
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

$\frac{1}{2} = \frac{\square}{12}$

b) Shade the bars to complete the equivalent fractions.

$\frac{1}{3}$			$\frac{1}{3}$			$\frac{1}{3}$		
$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$	$\frac{1}{9}$

$\frac{2}{3} = \frac{\square}{9}$

c) Shade the bars to complete the equivalent fractions.

$\frac{1}{3}$			$\frac{1}{3}$			$\frac{1}{3}$			
$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$	$\frac{1}{12}$

$\frac{1}{3} = \frac{\square}{12}$

d) Shade the bars to complete the equivalent fractions.

$\frac{1}{2}$			$\frac{1}{2}$		
$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$

$\frac{1}{2} = \frac{\square}{6}$

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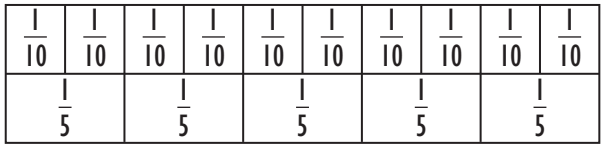
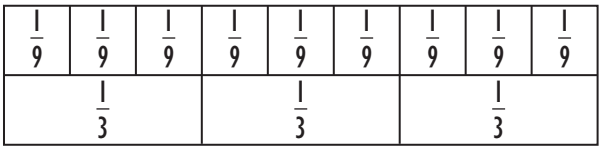
Skill 10.10 Completing equivalent fractions (2).

e) Shade the bars to complete the equivalent fractions.



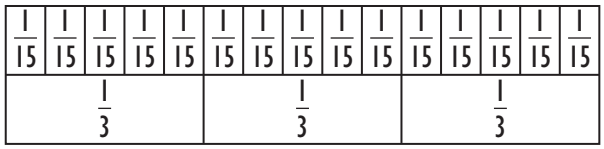
$$\frac{4}{10} = \frac{\square}{5}$$

f) Shade the bars to complete the equivalent fractions.



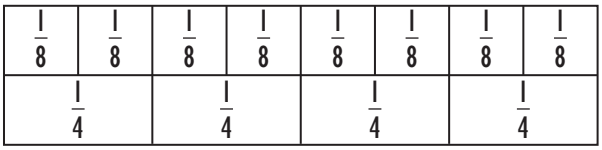
$$\frac{3}{9} = \frac{\square}{3}$$

g) Shade the bars to complete the equivalent fractions.



$$\frac{5}{15} = \frac{\square}{3}$$

h) Shade the bars to complete the equivalent fractions.



$$\frac{6}{8} = \frac{\square}{4}$$

i) Complete to form equivalent fractions:

$$\frac{4}{5} = \frac{16}{\square}$$

j) Complete to form equivalent fractions:

$$\frac{2}{3} = \frac{6}{\square}$$

k) Complete to form equivalent fractions:

$$\frac{1}{3} = \frac{\square}{9}$$

l) Complete to form equivalent fractions:

$$\frac{2}{6} = \frac{1}{\square}$$

m) Complete to form equivalent fractions:

$$\frac{1}{2} = \frac{\square}{8}$$

n) Complete to form equivalent fractions:

$$\frac{4}{10} = \frac{\square}{5}$$

o) Complete to form equivalent fractions:

$$\frac{2}{8} = \frac{1}{\square}$$

p) Complete to form equivalent fractions:

$$\frac{4}{12} = \frac{\square}{3}$$

q) Complete to form equivalent fractions:

$$\frac{6}{15} = \frac{\square}{5}$$

r) Complete to form equivalent fractions:

$$\frac{2}{7} = \frac{8}{\square}$$

s) Complete to form equivalent fractions:

$$\frac{2}{3} = \frac{\square}{18}$$

t) Complete to form equivalent fractions:

$$\frac{3}{10} = \frac{9}{\square}$$

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Skill 10.11 Comparing fractions (1).

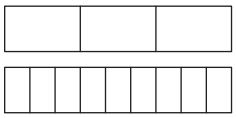
Using fraction bars

- Shade each fraction bar.
- Compare the shaded areas to decide which is the largest.
  Hint: The fraction with the largest shaded area is greater.

Using number lines

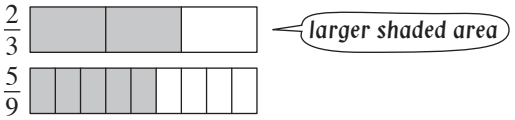
- Mark the positions of the fractions on the number line.
- Write the fraction whose position is to the right of the other fraction on the number line.

Q. Shade the fraction bars to show $\frac{2}{3}$ and $\frac{5}{9}$. Which fraction is greater?



A. $\frac{2}{3}$

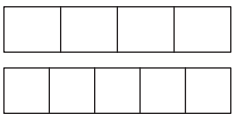
Shade two thirds of the first bar.
Shade five ninths of the second bar.
The fractions are close in value, however $\frac{2}{3}$ is greater than $\frac{5}{9}$.



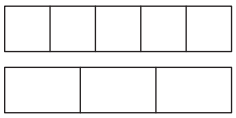
a) Shade the fraction bars to show $\frac{2}{3}$ and $\frac{3}{4}$. Which fraction is greater?

$\frac{3}{4}$

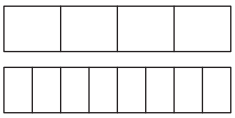
b) Shade the fraction bars to show $\frac{1}{4}$ and $\frac{2}{5}$. Which fraction is greater?



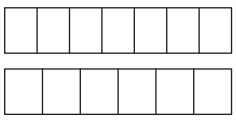
c) Shade the fraction bars to show $\frac{3}{5}$ and $\frac{2}{3}$. Which fraction is smaller?



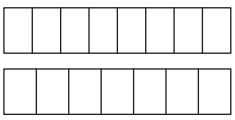
d) Shade the fraction bars to show $\frac{3}{4}$ and $\frac{7}{8}$. Which fraction is greater?



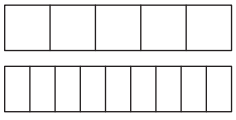
e) Shade the fraction bars to show $\frac{4}{7}$ and $\frac{5}{6}$. Which fraction is greater?



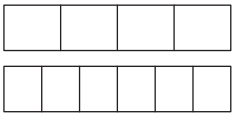
f) Shade the fraction bars to show $\frac{5}{8}$ and $\frac{4}{7}$. Which fraction is smaller?



g) Shade the fraction bars to show $\frac{3}{5}$ and $\frac{5}{9}$. Which fraction is greater?



h) Shade the fraction bars to show $\frac{3}{4}$ and $\frac{5}{6}$. Which fraction is smaller?



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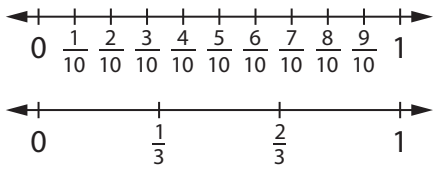
Skill 10.11 Comparing fractions (2).

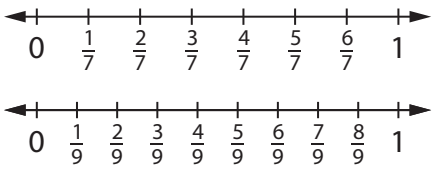
i)



Use <, = or > to make this statement true.

$\frac{3}{10}$ ☐ $\frac{1}{3}$

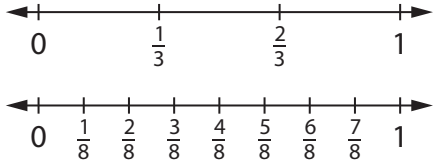
j)



Use <, = or > to make this statement true.

$\frac{5}{7}$ ☐ $\frac{6}{9}$

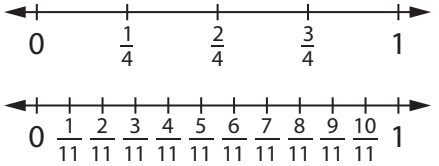
k)



Use <, = or > to make this statement true.

$\frac{2}{3}$ ☐ $\frac{5}{8}$

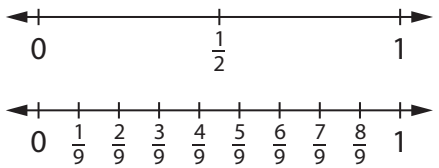
l)



Use <, = or > to make this statement true.

$\frac{3}{4}$ ☐ $\frac{7}{11}$

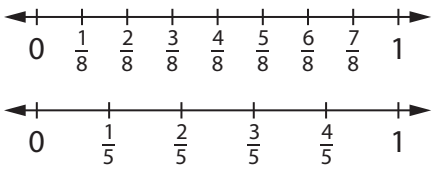
m)



Use <, = or > to make this statement true.

$\frac{1}{2}$ ☐ $\frac{5}{9}$

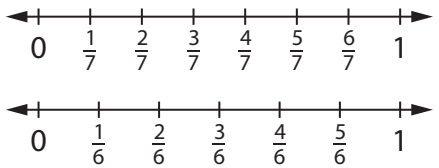
n)



Use <, = or > to make this statement true.

$\frac{4}{8}$ ☐ $\frac{3}{5}$

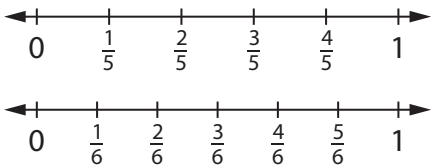
o)



Use <, = or > to make this statement true.

$\frac{3}{7}$ ☐ $\frac{2}{6}$

p)



Use <, = or > to make this statement true.

$\frac{4}{5}$ ☐ $\frac{5}{6}$

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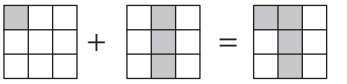
Skill 10.12 Adding fractions with the same denominators.

- Add the numerators (top numbers of the fractions).
  Note: Do not change the denominators.

Q. $\frac{1}{9}+\frac{3}{9}=$ **A.** $\frac{4}{9}$

Add the fractions:
One ninth plus three ninths is four ninths.
Add only the top numbers.



one ninth + three ninths = four ninths

$\frac{1}{9}+\frac{3}{9}=\frac{4}{9}$

a) $\frac{1}{3}+\frac{1}{3}=$ $\frac{2}{3}$

b) $\frac{2}{7}+\frac{3}{7}=$ ☐

c) $\frac{2}{5}+\frac{2}{5}=$ ☐

d) $\frac{4}{9}+\frac{3}{9}=$ ☐

e) $\frac{1}{6}+\frac{4}{6}=$ ☐

f) $\frac{2}{4}+\frac{1}{4}=$ ☐

g) $\frac{1}{5}+\frac{3}{5}=$ ☐

h) $\frac{1}{8}+\frac{2}{8}=$ ☐

i) $\frac{2}{9}+\frac{2}{9}=$ ☐

j) $\frac{3}{8}+\frac{4}{8}=$ ☐

k) $\frac{3}{10}+\frac{4}{10}=$ ☐

l) $\frac{5}{12}+\frac{6}{12}=$ ☐

m) $\frac{1}{7}+\frac{5}{7}=$ ☐

n) $\frac{2}{9}+\frac{5}{9}=$ ☐

o) $\frac{1}{5}+\frac{1}{5}=$ ☐

p) $\frac{6}{13}+\frac{6}{13}=$ ☐

q) $\frac{7}{10}+\frac{2}{10}=$ ☐

r) $\frac{8}{11}+\frac{2}{11}=$ ☐

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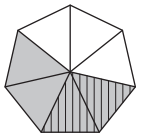
Skill 10.13 Subtracting fractions with the same denominators.

- Subtract the numerators (top numbers of the fractions).
  Note: *Do not change the denominators.*

Q. $\frac{4}{7} - \frac{2}{7} =$

A. $\frac{2}{7}$

Subtract the fractions:
Four sevenths minus two sevenths is two sevenths.
Subtract only the top numbers.



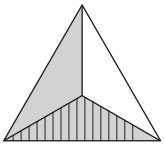
four sevenths – two sevenths = two sevenths

$\frac{4}{7} - \frac{2}{7} = \frac{2}{7}$

a) $\frac{2}{3} - \frac{1}{3} =$ $\frac{1}{3}$

b) $\frac{4}{5} - \frac{1}{5} =$ ☐

c) $\frac{6}{9} - \frac{2}{9} =$ ☐



d) $\frac{6}{7} - \frac{3}{7} =$ ☐

e) $\frac{5}{8} - \frac{2}{8} =$ ☐

f) $\frac{3}{5} - \frac{2}{5} =$ ☐

g) $\frac{9}{10} - \frac{6}{10} =$ ☐

h) $\frac{8}{12} - \frac{3}{12} =$ ☐

i) $\frac{7}{11} - \frac{2}{11} =$ ☐

j) $\frac{11}{17} - \frac{1}{17} =$ ☐

k) $\frac{8}{15} - \frac{1}{15} =$ ☐

l) $\frac{9}{13} - \frac{5}{13} =$ ☐

m) $\frac{4}{4} - \frac{1}{4} =$ ☐

n) $\frac{8}{9} - \frac{2}{9} =$ ☐

o) $\frac{5}{6} - \frac{2}{6} =$ ☐

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Skill 10.14 Simplifying fractions.

- Decide if the fraction can be simplified.
- Divide both the numerator and the denominator by the same number.
  Hint: If the numbers are both even then you can always start with dividing by 2.
  Example:

6 *numerator (even)*
8 *denominator (even)*

$$\frac{6}{8}\ \begin{matrix}\div 2\\ \div 2\end{matrix} = \frac{3}{4}$$

SIMPLIFYING FRACTIONS RULE
If both numbers, top (numerator) and bottom (denominator), can be divided by the same number then the fraction can be simplified.

- Continue dividing by any of the prime factors (2, 3, 5 ...) until the fraction can no longer be simplified.

Q. Simplify: $\frac{6}{10}$

A. $\frac{6}{10}\ \begin{matrix}\div 2\\ \div 2\end{matrix} = \frac{3}{5}$

Both 6 and 10 are even numbers. They can be divided by 2. The fraction can be simplified.

a) Simplify: $\frac{12}{18}$

$\frac{12}{18}\ \begin{matrix}\div 2\\ \div 2\end{matrix} = \frac{6}{9}\ \begin{matrix}\div 3\\ \div 3\end{matrix} = \frac{2}{3}$

b) Simplify: $\frac{4}{6}$

.....

c) Simplify: $\frac{9}{12}$

.....

d) Simplify: $\frac{5}{10}$

.....

e) Simplify: $\frac{3}{9}$

.....

f) Simplify: $\frac{8}{14}$

.....

g) Simplify: $\frac{10}{12}$

.....

h) Simplify $\frac{9}{15}$

.....

i) Simplify: $\frac{4}{20}$

.....

j) Simplify: $\frac{15}{25}$

.....

k) Simplify: $\frac{10}{25}$

.....

l) Simplify: $\frac{20}{70}$

.....

m) Which of the following fractions **cannot** be simplified?

A) $\frac{2}{15}$ B) $\frac{3}{15}$ C) $\frac{4}{15}$ D) $\frac{5}{15}$

and

n) Which of the following fractions **cannot** be simplified?

A) $\frac{4}{10}$ B) $\frac{6}{10}$ C) $\frac{7}{10}$ D) $\frac{9}{10}$

and

o) Which of the following fractions **cannot** be simplified?

A) $\frac{6}{18}$ B) $\frac{7}{18}$ C) $\frac{9}{18}$ D) $\frac{11}{18}$

and

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Skill 10.15 Finding a fraction of a whole number.

- First find one fraction of the number by dividing by the denominator.
- Then multiply the number of fractions you need by the result.

Example: Three fifths of 10?
First find one fifth of 10 by dividing 10 by 5. $10 \div 5 = 2$
Then find three fifths of 10 by mulyiplying 2 by 3. $2 \times 3 = 6$
So three fifths of 10 is 6.

Q. Eric kicked two thirds of his team's 12 goals. How many goals did he kick?

A. ***8***

Find one third of 12.
Divide 12 by 3. $12 \div 3 = 4$

Find two thirds of 12.
Multiplying 2 by 4. $2 \times 4 = 8$

a) Three fourths of the 28 students in the class are boys. How many boys are in the class?

one fourth of 28 = 28 ÷ 4 = 7

three fourths of 28 = 3 × 7 = 21

b) Two fifths of the 50 children at the nursery had the flu. How many children had the flu?

one fifth of 50 =

two fifths of 50 =

c) Ian scored five eighths of the 40 points on the test. How many points did he score?

one eighth of 40 =

d) Five sixths of the 30 horses in the race jumped over the first hurdle. How many horses jumped the first hurdle?

e) Of the 24 students in a class, one third are chosen for the school play. How many students are chosen for the play?

f) Of the 100 cakes at a party, seven tenths were eaten in the first hour. How many cakes were eaten in the first hour?

g) Of the 28 students in the class, two sevenths did not go to camp. How many students did not go to camp?

h) Gina has finished reading five ninths of the 360 pages of her book. How many pages did Gina finish reading?

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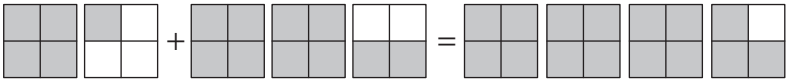
Skill 10.16 Adding mixed numbers with the same denominators.

- Add the whole numbers first.
- Then add the numerators (top numbers of the fractions).
  Note: Do not add the denominators (bottom numbers of the fractions).
- Write the result as a mixed number.

Q. $1\frac{1}{4} + 2\frac{2}{4} =$

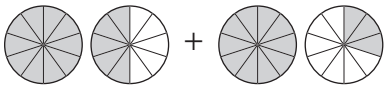
A. ***3 3/4***

Add the whole numbers first:
$1 + 2 = 3$
Add the fractions:
One fourth plus two fourths is three fourths.



$1\frac{1}{4} + 2\frac{2}{4} = 3\frac{3}{4}$

a) $1\frac{5}{10} + 1\frac{3}{10} =$ $2\frac{8}{10}$



b) $2\frac{3}{7} + 3\frac{3}{7} =$ ☐

c) $4\frac{2}{8} + 1\frac{5}{8} =$ ☐

d) $6\frac{3}{10} + 2\frac{4}{10} =$ ☐

e) $3\frac{2}{5} + 1\frac{1}{5} =$ ☐

f) $4\frac{1}{6} + 3\frac{4}{6} =$ ☐

g) $2\frac{2}{9} + 4\frac{3}{9} =$ ☐

h) $1\frac{5}{7} + 3\frac{1}{7} =$ ☐

i) $2\frac{2}{11} + 3\frac{5}{11} =$ ☐

j) $5\frac{2}{4} + 3\frac{1}{4} =$ ☐

k) $2\frac{2}{9} + 4\frac{3}{9} =$ ☐

l) $5\frac{3}{7} + 3\frac{2}{7} =$ ☐

m) $1\frac{2}{8} + 3\frac{5}{8} =$ ☐

n) $5\frac{8}{11} + 2\frac{2}{11} =$ ☐

o) $3\frac{2}{6} + 4\frac{1}{6} =$ ☐

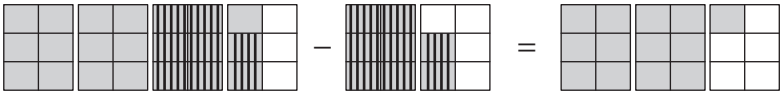
Skill 10.17 Subtracting mixed numbers.

- Subtract the whole numbers first.
  Hint: You may need to convert 1 whole number to an equivalent fraction.
  Example: $1 = \frac{5}{5}$ *one whole equals five fifths*
- Then subtract the numerators (top numbers of the fractions).
  Note: Do not subtract the denominators (bottom numbers of the fractions).

Q. $3\frac{3}{6} - 1\frac{2}{6} =$

A. ***2 1/6***

Subtract the whole numbers first:
$3 - 1 = 2$
Subtract the fractions:
Three sixths take away two sixths is one sixth.



$3\frac{3}{6} - 1\frac{2}{6} = 2\frac{1}{6}$

a) $3\frac{7}{10} - 1\frac{3}{10} =$ $2\frac{4}{10}$

b) $5\frac{6}{7} - 2\frac{1}{7} =$ ☐

c) $4\frac{5}{8} - 1\frac{4}{8} =$ ☐

d) $6\frac{9}{10} - 3\frac{2}{10} =$ ☐

e) $7\frac{3}{5} - 5\frac{1}{5} =$ ☐

f) $3\frac{5}{6} - 2\frac{3}{6} =$ ☐

g) $8\frac{7}{9} - 6\frac{2}{9} =$ ☐

h) $6\frac{3}{7} - 2\frac{2}{7} =$ ☐

i) $5\frac{10}{11} - 3\frac{6}{11} =$ ☐

j) $5\frac{3}{4} - 4\frac{2}{4} =$ ☐

k) $4\frac{8}{9} - 2\frac{6}{9} =$ ☐

l) $7\frac{5}{7} - 3\frac{2}{7} =$ ☐

m) $3\frac{7}{8} - 1\frac{2}{8} =$ ☐

n) $5\frac{9}{11} - 2\frac{4}{11} =$ ☐

o) $4\frac{4}{6} - 3\frac{1}{6} =$ ☐

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